

The Technology Review

VOL. XIV.

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No. 1

Contents

	PAGE
CAMBRIDGE REMOVES THE LAST OBSTACLE . .	1
OUR GREAT OPPORTUNITY	6
THE PRESIDENT'S REPORT	8
AN APPRECIATION OF PROFESSOR CHANDLER . .	19
WORTHY RECORD OF PHYSICS DEPARTMENT . .	21
PROFESSOR LANZA MADE EMERITUS	30
A "TECH" FOR CANADA	36
RETIREMENT OF MRS. STINSON	45
EDISON'S OPINION OF TECHNOLOGY	49
RESIGNATION OF PROF. PETER SCHWAMB	56
THE TREASURER'S REPORT	59
SAFEGUARDING STUDENT CREDIT	61
ALUMNI CLUBS FLOURISHING	63

technology review

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Contents

	PAGE
TECH MEN IN THE PUBLIC EYE	69
DEPARTMENT NEWS OF INTEREST	73
MISCELLANEOUS CLIPPINGS	77
BOOK REVIEWS.	81
PUBLICATIONS OF INSTITUTE STAFF	85
CLASS NEWS	90

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OF THE

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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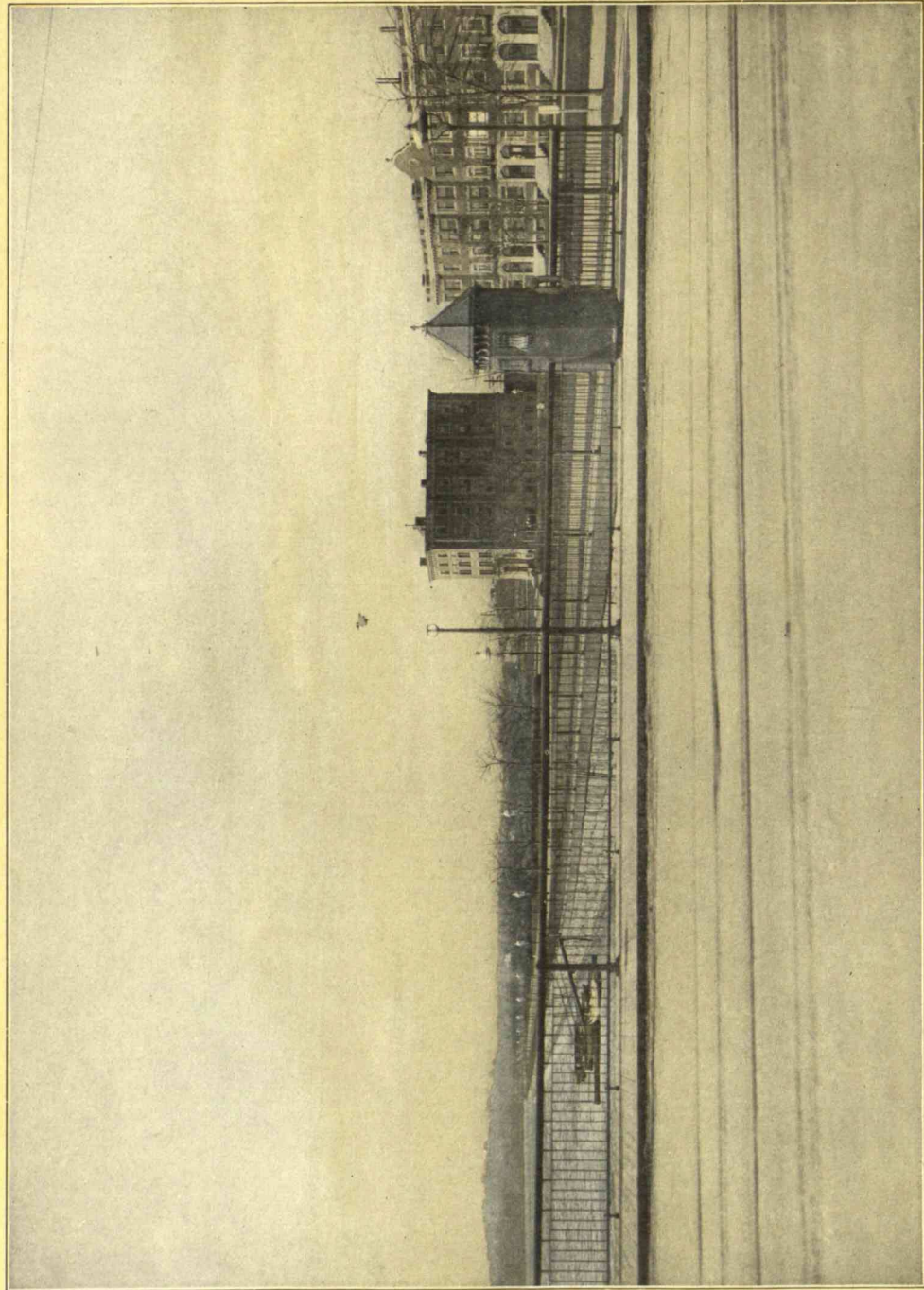
LOCAL ALUMNI ASSOCIATIONS

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- Brookline — BROOKLINE TECHNOLOGY ASSOCIATION, George Lawrence Smith ('97), Secretary, 20 Central Street, Room 7, Boston, Mass.
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- Cincinnati — Cincinnati M. I. T. Club at the Bismarck Grill, Walnut Street, Tuesdays, from 12-1.30 p. m.
- Providence — Technology Club of Rhode Island, at the Blackstone Hotel, 317 Westminster Street, Thursdays at 12.30 p. m.



CHARLES RIVER ESPLANADE, SOUTHWEST OF MASSACHUSETTS AVENUE

Showing the opportunity for Student Houses and general architectural development adjacent to the new site

The Technology Review

VOL. XIV.

JANUARY, 1912

No. 1

CAMBRIDGE REMOVES THE LAST OBSTACLE

Streets on site will be closed—A few minor details to be cleared up before title passes—Fund to be raised among former students will be first real gauge of Alumni resources

On Tuesday evening, December 26, the Cambridge Common Council removed the last serious obstacle that stood in the way of the Institute of Technology locating in that city on the contemplated Esplanade site, by accepting the report of the Committee on Highways which recommended the closing of Amherst Street running through the property. Although it was generally expected that this would be the final outcome of the matter, nevertheless, from rumors that had been afloat, it seemed not at all unlikely that it might be delayed for a considerable period, and the final action of the Council was announced with great satisfaction by the press and heartily approved by the citizens of greater Boston.

At a meeting of the Highway Committee, December 23, it was voted to report favorably on the closing of Amherst Street, and also to accept the \$10,000 offered by the Institute to be applied to the widening of Vassar Street and its extension to Main Street, as well as the extension of Ames Street in a direct line to the Esplanade, the Institute donating the land necessary for this purpose.

Although public opinion in Cambridge as well as in Boston is overwhelmingly in favor of having the Institute occupy the Charles River Basin site, the motion to close Amherst Street was not without opposition in the Board of Aldermen and Common Council; only one alderman, however, opposed the acceptance of the report

of the committee. He moved to reconsider the action of the board, but the motion was lost. In the Common Council, Mr. Charles Gaffney accused the committee of going beyond its authority and raised as a point of order that the matter should have gone to the Finance Committee and was, therefore, not properly before the Council. His point was overruled and appealing from the decision of the Chair, he was not sustained. Other councilmen favored delay; Mr. Horan desired to find out definitely what Technology would do for the young men of Cambridge in the way of scholarships. He wanted to have a scholarship for each ward of the city and wanted the matter clinched before the petition to close the streets was acted upon. The argument was made that Cambridge would ruin itself financially by granting the petition and allowing Technology to locate there, declaring that taxpayers would spend one third more than they would if so much property was not exempt from taxation. These arguments, however, had small weight as the matter had been very thoroughly studied by the members of the city government for the last two or three months and a great majority had become thoroughly convinced that the coming of the Institute, with all that it carried with it, would largely increase the valuation of the land along the Basin, so that this landscape feature would be a source of pride as well as of increased revenue. The Council voted 16 to 6 in favor of the resolution; a motion to reconsider was lost.

This closes a period of waiting which, although trying, has been but of few weeks' duration. The first hearing before the Cambridge City Council occurred November 14, and although there was ample time for deliberation, the matter has been happily terminated after a period of a little over six weeks.

In a newspaper interview relative to the favorable action of the city government of Cambridge, President Maclaurin is quoted as saying:—"The Institute of Technology has been anxious from the first that the decision of Cambridge should be reached after due deliberation, and it has therefore refrained from pressing an earlier settlement. The closing of Amherst Street is essential to its interests, if it is to go to this site, but it is even more essential that it should have the good will of the community in which it is placed.

"Some evidence that it would be welcomed in Cambridge was therefore required, and the action of the city government, follow-

ing on the urgent invitation of the preceding government and the numerous petitions from individuals and societies that have reached the site committee, should make it clear that Cambridge really wants Technology, and recognizes such an institution as a blessing and not as a burden.

"I need hardly add," said Doctor Maclaurin in conclusion, "that if Technology goes there it will do its best to serve the city in any way that lies within its power. There are still some restrictions and other minor difficulties to be removed, but the removal of these obstacles lies with the owners of the land and not with the city or the Institute."

"The engineering problem is the one we now have to deal with; that is, how we must arrange the buildings to accommodate the two thousand students we expect to have when first we open the new buildings. It may be possible that this number will be increased as our plans advance, but at present, 2,000 is the number we are planning for.

"After we have determined upon what we desire, then and then alone will architects be consulted. It is hardly possible that this will be done before the spring is well along.

"About \$750,000 must be raised for the land alone. Already \$500,000 has been secured from Thomas Coleman du Pont. Two or three millions more must be raised for developing the buildings. This does not mean, however, that it will be necessary for us to wait until the entire amount is received. The moving process can be undertaken gradually.

"Research work in technical chemistry and physical chemistry will most likely be the first given a place on the new site.

"Before we finally move to the Cambridge site, it must be necessary to dispose of the present property on Trinity Place. An offer has been made by the Park Square Trust, but that organization has been dissolved by the courts."

Institute men are particularly interested to know how soon building operations will begin and when the new institution will be available for use. Probably the most difficult problem yet to be solved is to decide on the specifications for the buildings, for before this can be done, the whole matter will have to be most carefully studied by men fitted for this work. It is the desire of the Institute to so design and distribute its buildings that there will be flexibility for expansion and for any changes in the trend

of education that may come within a reasonable number of years. The apportionment of space that will preserve a proper balance between the departments, not only at the present time, but in the future, will require deep study and deliberation. Convenience of operation must be considered and this alone will involve a rough forecast of half a century or more. In addition to all this, there will be many new features which have not before been considered in connection with an institution of this kind. Furthermore, the plant will be more isolated than it is at the present time and proper provision will have to be made with a view to this condition. Just how long it will take to work out these plans and come to a definite conclusion is problematical. No move will be made to erect a new Technology until all the features in connection with it have been thoroughly gone over and discussed from every point of view.

In the meanwhile, the efforts of the Institute will be directed to the securing of ample funds to build the new institution. The most important feature in this campaign will be a fund to be raised from former students of the Institute, because the number of donors, the amount contributed, and the celerity with which the money is raised will have an important bearing on the gifts from men not connected with the Institute. The Alumni Association, through its Council, recently appointed an alumni committee to secure subscriptions from the former students of the Institute. This committee is already organized and active work will begin within a very short time. Every former student will be asked to give something, whether it be large or small. The committee will seek to impress the fact that such an opportunity has never been offered to Tech men before and probably never will be again. It is an opportunity to show the world the resources that lie within ourselves in a way that will be astonishing. While it is not intended that any man shall give more than he can afford, it is the purpose of the committee to make the campaign for funds a perfect example of financial engineering. Local and class committees will be formed and it is expected that the movement will have the hearty support of every Tech man who is called on for assistance. The alumni have given generously in the past, but those who are in the best position to express an opinion, believe that the Income Fund of nearly a quarter of a million dollars recently given to the Institute by alumni will not be a marker to

the new fund of which the new Institute will be a memorial. The committee has not yet formally announced its plans. Some of the local associations are already anticipating the matter and are prepared to roll up their sleeves and get to work as soon as the committee sends out its call.

President to Visit Alumni Associations

The local alumni associations east of Chicago will have the pleasure of entertaining President MacLaurin at their annual banquets which have been arranged so that he could journey from one to the other, during the latter part of January and the first of February. This is the first time that a president of the Institute has arranged a tour of this extent and if it were not for the fact that his presence will be necessary here in Boston, he would continue on to the coast and visit every alumni association in the United States. He hopes that he may be able to take in the cities west of Chicago sometime early in the spring.

His itinerary is as follows: Philadelphia, Saturday, January 20; Washington, Monday, January 22; Pittsburgh, Tuesday, January 23; Akron, Wednesday, January 24; Cincinnati, Thursday, January 25; Chicago, Saturday, January 27; Minneapolis, Monday, January 29; Detroit, Wednesday, January 31; Buffalo, Thursday, February 1; Rochester, Friday, February 2, and Syracuse, Saturday, February 3.

Mr. Edison to Speak at New York Banquet

Just as the REVIEW is going to press, we have received word that Thomas A. Edison will be one of the speakers at the annual banquet of the Technology Club of New York, January 13. Mr. Edison seldom goes to a banquet and very rarely, indeed, can he be persuaded to say anything.

His appearance in New York indicates his great interest in Technology, an interest which he has emphatically expressed in newspaper interviews and in other practical ways.

OUR GREAT OPPORTUNITY

Will the Institute get much aid from Former Students?—A Question that the Public is Asking

An editorial in the *Boston Transcript*, December 15, entitled "Technology's Rosy Future" is an excellent general presentation of the status of the Institute today. In questioning whether the alumni of the Institute as a body can materially help in financing the new Technology, the *Transcript* voices a query in the public mind. It is true that our former students have not yet been called upon to contribute any such sum as will be needed in the immediate future, but they have given unostentatiously to two large funds, and although the individual amounts have not averaged high, the number of donors has been large and the spirit of the gift has been fine.

The former students of the Institute have before them not only a duty but an opportunity, and we believe that when the general alumni fund for the new buildings has been finally closed, the public will be astonished at the spirit, the generosity and the resources of Technology men.

The following is the editorial referred to:

"In his forecast for the immediate future of the Massachusetts Institute of Technology, President Maclaurin, in his annual report to the Corporation, has only optimistic views to present. The situation has cleared wonderfully under the direction of the new leader of Technology, for even a year ago there were some serious rocks in its course. Two great junctures forced themselves at once before the management—the problem of maintenance and that of the new site. The Technology Congress, the semi-centennial of the Institute, was a public exposition of the marvelous esteem for the institution by those who are in a position to make or mar a scientific reputation. The renewed and increased support of the State was a splendid beginning, and the flow of encouragement has not ceased, for the President shows that in all, financial expectations amounting to two and three-quarter millions will accrue in the near future.

"There has been serious question whether the alumni of Technology are yet in a position to afford much financial aid to the institution from which they were graduated. This is a difficulty that will decrease as the years pass on, for it must be remembered that the average age of the Technology graduate today is less than forty years, so that efficient as they may be, they can hardly have had time to amass those large fortunes which are the support of education in this country. But with the gift of T. Coleman du Pont of half a million for a site, and the ready financing, largely through an anonymous donor, of the establishment for the summer engineering school, a matter of twenty-five or thirty thousand dollars, it has become evident that the institution is not without moneyed graduates.

"This is all encouraging, for although the task of raising two millions for suitable buildings with which to adorn and utilize the most magnificent site for a group of buildings in the country is not to be underestimated, and cannot be done without work and persistent and serious effort, there is encouragement in what has been done and there can be no question about the business men furnishing to the Institute whatever support it may need. For the whole of the work at Technology is along business lines and the world is realizing it even more now than ever. So close is this relation that the commercial world and the scientific are looking for immediate beneficial outcomes from investigations within the modest walls of its laboratories. Not less than half a dozen problems beyond the individual reach of manufacturers are under consideration, from the behavior of currents of wind that must be utilized by the aeroplane to the propeller and form of ships, which have never been discussed so well till now, through a great range of industrial chemical problems to the bacterial content of eggs, while the scientists await the outcome of a fundamental determination of the corner-stone of chemistry, the atomic weight of the elements."

In accordance with a ruling of the Post Office Department the Alumni Association recently made the price of the TECHNOLOGY REVIEW, \$1.50 a year. Members of the Alumni Association who have paid their dues can subscribe for the REVIEW on the basis of \$1.00 a year. A check can be sent covering dues to the Alumni Association, \$1.00, and TECHNOLOGY REVIEW, \$1.00.

THE PRESIDENT'S REPORT

Two and three quarter million dollars to accrue to the Institute
in the near future—Internal affairs in healthy condition—
Bright prospects ahead

There is a strong note of optimism echoing through the report of President Maclaurin which was presented to the Corporation at its meeting, December 13. The report comes at the end of a year of most important developments, beginning with the gift of Mr. du Pont. This, with the grant of \$100,000 a year for ten years from the State and the large gifts received during the year made it possible for the Institute to seriously plan for a new home. Just before the report was presented, the Highway Committee of the city of Cambridge brought in a report favoring the closing of the streets on the proposed site and acceptable alike to the Institute and the city.

Presidents' reports have usually been optimistic because there is that in the institution itself to inspire confidence in its ultimate supremacy over physical obstacles, but to President Maclaurin, who has untiringly devoted all of himself to bringing about the momentous results which have been recently accomplished, comes the opportunity of making definite and most encouraging statements in regard to the immediate future of Technology.

In his report the President first speaks of the losses that have come to the Institute since making his last report:

LOSSES DURING THE YEAR

"Foremost amongst the losses is that of Mrs. Rogers, whose death in May broke a link with the very beginnings of the Institute. Throughout her long life, she was catholic in her appreciation of good causes, but from the foundation of the Institute, the interests of Technology were peculiarly her own. Her devotion to it was part of her loyalty to the memory of her husband, but it was greatly stimulated by her personal sympathy with struggling youth and her understanding of the importance of the Institute's

work to the well-being of society. I need hardly remind you that Mrs. Rogers was a woman of quite exceptional vigor of mind, as well as charm of character and manner. Her memory will be cherished by every Institute man, and by all others who had the good fortune to come within the range of her influence.

"Your Corporation itself has suffered a great loss by the death of Mr. Nathaniel Thayer, whose term of service as one of its members was of the longest, and who, throughout that long period, proved himself a staunch friend and generous benefactor of the Institute. During the year died also Dr. Charles G. Weld, who, although not a member of this Corporation at the time of his death, served on it for ten years and continued his interest in the Institute unabated until his death. Doctor Weld was especially interested in the work of the department of naval architecture, and he showed that interest in the most practical way by keeping in close touch with its activities, suggesting new fields of endeavor, and generously supplying funds required to carry out plans that seemed to him good. The loss of his interest and support will be keenly felt by the department and it is particularly to be regretted that the important researches for which he had made partial provision will have to be abandoned for lack of means to continue them.*

"The instructing staff has also suffered conspicuous losses by the retirement of Professors Lanza, Chandler and Schwamb, and by the death of Mrs. Richards. Professor Lanza retires on a pension with the title of professor emeritus, after forty years of service. Throughout that long period, he has shown himself absolutely devoted to the interests of the Institute, to which he has rendered a memorable service in the building up of one of the most important departments, that of mechanical engineering. Professor Chandler, who has retired on a pension from the Carnegie Foundation, has also well earned the title of professor emeritus. He has been head of the department of architecture for twenty-three years, and leaves the oldest school of architecture in the country at the highest level of its efficiency and reputation. He retires with the respect and love of all who appreciate the singular genuineness and sincerity of his character and his zeal

* It is encouraging to note that since this statement was made, Mr. Arthur C. James and Mr. Clinton H. Crane of New York have made generous provisions for the continuation of this work.

for the advancement of architecture throughout the country. Among the many evidences of that appreciation, one that made a special appeal to him was the announcement by the Boston Society of Architects that it proposed to establish a fund for the annual award of a Francis W. Chandler prize to a post-graduate student of architecture at the Institute.

"Professors Lanza and Chandler have given up their active duties at an age when retirement is normal. Professor Schwamb, on the other hand, has unfortunately felt it necessary to retire on the ground of physical disability, but for which many more years of service might have been expected of him. He has done excellent work in directing the department of mechanic arts, and has fully maintained the very high standard of devotion to the Institute that has been set by the senior members of the Faculty.

"In Mrs. Richards, we have lost a great teacher and a great worker in great causes. In his report to the Corporation in 1883, President Walker in making some references to the education of women, recalled the fact that as early as 1867 among the lectures open equally to both sexes were certain courses in chemistry given by instructors at the Institute,—Professors Storer and Charles W. Eliot. He went on to describe the improved facilities that the Institute had just provided for the instruction of women, and added, 'The completion of these laboratories of necessity supercedes the separate laboratory which had been so long maintained, largely through the zeal and devotion of Mrs. Ellen H. Richards, herself a regular graduate of the Institute, who has for seven years given instruction several hours of each day, without any compensation for her services.' Service of that kind, begun thirty-four years ago and continued with unflagging zeal until the end, was characteristic of the spirit that animated her, not only in her relations with the Institute, but in all the other fields of her activities. She was especially interested in the betterment of living conditions for all, through the application of scientific methods to the problems of household management, and she was a tireless worker in the cause of women's education. She was the guide, philosopher and friend to every woman studying at the Institute. There are very few of these today, and there is little prospect of an increase in the numbers, as the scientific education in women's colleges continues to improve, and as women hesitate to enter the professions to which the Institute's courses are de-

signed to lead. However, the Institute still refrains from imposing any artificial barriers to those women who wish to profit by its courses, and it is not likely to forget what it owes to the devotion of women of whom Mrs. Richards was a type. It is gratifying to know that her friends are endeavoring to establish a permanent memorial of her work at the Institute in a form that would undoubtedly have commended itself to her judgment."

GAINS

"The great personal losses to which reference has just been made have been offset by very conspicuous gains. These gains have not been all material. Indeed, I should account as by far the greatest gain of all the change that within the year has come over the spirit of the friends of Technology. The feeling of uncertainty on the part of many, and even of despondency on the part of a few, has completely passed away. The main causes of the darker mood were an appreciation of the heavy financial burden involved in maintaining the Institute in its position of leadership, and a lack of appreciation of the practical value of the loyalty of the alumni and of the public good-will towards the Institute. A mere enumeration of the additions to the Institute's resources, announced during the year will show that there is a substantial basis for the change of outlook. The grant of a million dollars by the Commonwealth, the bequest of nearly one-half million from Mrs. Rogers, of over one-half million from Mr. Greene, the promise of one-half million from Mr. du Pont, the bequest of \$50,000 from Mr. Thayer, of nearly \$100,000 from Mrs. Frances M. Perkins, the gifts and bequests set forth on the first page of the treasurer's report, added to those from alumni for the purchase and equipment of the Summer School of Civil Engineering, make a grand total of nearly two and three-fourths millions of dollars, to be confidently reckoned on as accruing in the near future."

The report then reviews the campaign to secure a provision for current expenses from the State and the happy termination of the efforts of the committee on State aid which reflected the good-will of the people of Boston and the legislature of Massachusetts as well as its Executive. In speaking of the legacies left by Mrs. Rogers and Mr. Greene, President Maclaurin says:

BEQUESTS OF MRS. ROGERS AND MR. GREENE

"A few days after the approval by His Excellency, the Governor, of this grant from the State, the publication of Mrs. Rogers' will revealed the fact that she had left nearly the whole of her property to the Institute. Her example of whole-hearted devotion to the advancement of Technology cannot fail to have a stimulating effect on all who wish to see the fruition of Rogers' ideas, and especially on the alumni of the Institute, who have so long paid the tribute of respect to the memory of its founder, and to Mrs. Rogers herself. It is gratifying to observe that Mrs. Rogers displayed her confidence in your Corporation by leaving everything to this body without conditions or restrictions of any kind as to its use.

"About the same time, it became known that the late Mr. Francis B. Greene had bequeathed a very valuable estate to the Institute in trust, for the assistance of poor and meritorious students therein. It is left to the discretion of your Corporation to determine what form such assistance is to take. Aid may be granted by way of scholarships towards the payment of tuition fees, but it is worthy of serious consideration whether it would not be better in some cases to make partial provision for satisfactory board and lodgings. Experience of the actual conditions here shows that young men often find it much more difficult to get help towards the payment of living expenses than of tuition fees, and in not a few cases they are driven to an extreme of economy that is detrimental to their health and well-being.

"Mr. Greene's large addition to the funds that are available for scholarship purposes emphasizes the fact that these funds form a very considerable proportion of the income-producing property of the Institute. It is not as thoroughly realized as it should be that such funds do not directly help the Institute at all, great as is their value to the students aided thereby. The Institute has no difficulty in attracting as many students as it can deal with satisfactorily, and benefactors, who found scholarships, seldom seem to grasp the simple fact that every student is a financial burden on the Institute, and costs it a great deal more than it receives by way of tuition fee. Ten years ago the tuition fee was \$200 and the cost per student \$363, so that the loss on each was \$163. Meanwhile the fee has been raised to \$250, but the cost of education has grown more rapidly. In the decade 1900

to 1910, the total amount paid in salaries to the instructing staff increased 70%, and the total annual expenses rose from \$377,423 to \$615,571, an increase of 63%. This brought the cost per student up to \$489 per annum, making an excess of \$239 over the tuition fee. The maintenance of such a condition is made possible by the endowments of the Institute, but every benefactor who founds a scholarship here, takes something from the gift of others who have imposed no restrictions on what they have given. In view of this, it has sometimes been suggested that the Institute should not accept the trust of a scholarship fund unless the founder follows the practice of the Commonwealth and adds to the general endowment when providing for scholarships. I do not advocate such a departure from the traditional policy, but I commend to your consideration the question whether some of the burden now borne by the Institute ought not to be transferred to the shoulders of those who benefit directly by grants from the scholarship funds. This might be done by imposing on the recipients of scholarships an obligation to reimburse the Institute after a reasonable lapse of time."

In speaking of Mr. du Pont's gift, Doctor Maclaurin continues:

MR. T. COLEMAN DU PONT'S GIFT AND THE SITE PROBLEM

"These two matters are mentioned together because the site problem that has perplexed your Corporation for so many years was practically solved by Mr. du Pont's generous offer to contribute one-half million dollars on condition that an additional one and one-half million dollars be raised during the next five years. The difficulties of the site problem being mainly financial were greatly increased by the fact that two heavy burdens were imposed on the friends of the Institute at the same time. One of these was to obtain money to buy a site and rebuild the Institute, and the other was to add very largely to the endowment fund, so as to prevent the recurrence of serious deficits. It seemed natural to attack these problems separately and successively. This policy, however, was met by the difficulty that many feared a campaign for physical development would dry up the sources of supply for current expenditure, and so endanger the educational standards of the Institute, whilst others saw no hope of obtaining any large additions to endowment funds until the future location of the Institute was definitely settled. Under these circumstances it

was necessary to take the two problems together. Mr. du Pont's offer was large enough to demonstrate that the site problem could be solved, and it was opportunely timed so as to convince the legislature that the Institute meant to move and should be helped in the matter of endowment until it had time to set its new house in order."

The President refers to the gift of the Summer School of Civil Engineering made by the alumni of the civil engineering department and the benefits the department would derive from this gift.

CONGRESS OF TECHNOLOGY

In speaking of the Congress of Technology, Doctor Maclaurin says:

"The charter of the Institute was signed by Governor Andrew on the tenth of April, 1861. To celebrate the fiftieth anniversary of this event, a Congress of Technology was held in Boston, and to this congress representatives of industries throughout the country were invited to listen to and discuss papers presented by alumni of the Institute and members of its Faculty. These papers dealt with various phases of the relations between the Institute's activities and the industrial efficiency of the nation. They have recently been collected and published under the title 'Technology and Industrial Efficiency.' The success of the congress itself surpassed even the expectations of its promoters both as regards the variety and importance of the papers presented, and the great interest shown by representatives of industry from all parts of the country. The proceedings closed with a banquet in Symphony Hall which was remarkable for the enthusiasm displayed for the welfare and advancement of the Institute. It is gratifying to be able to add that the whole proceedings cost the Institute nothing, as all expenses were defrayed by generous subscriptions from its friends.'"

INTERNAL AFFAIRS

"With regard to internal affairs, reference has already been made to the loss to the instructing force due to the resignations of Professors Lanza, Chandler and Schwamb. In Professor Lanza's place, Professor Edward F. Miller has been made acting-head of the department of mechanical engineering, and has thrown himself into the work of its reorganization with characteristic energy and enthusiasm for the advancement of the Institute.

Temporary arrangements have been made for carrying on the work of Professor Chandler. The teaching has been entrusted to special lecturers and the administrative duties have been undertaken by Professor W. H. Lawrence, whose experience and temperament qualify him admirably for their performance. Professor Schwamb had, for many years, devoted his energies to the important work of directing the department of mechanic arts, in which the Institute was one of the first to give systematic instruction. Since his retirement, it has been deemed expedient to associate this department more closely with that of mechanical engineering, Professor Park of that department having care of its immediate direction. In an appendix to the President's report Professor Miller sets forth the changes that are being effected in the course of mechanical engineering. Although the benefit of practical acquaintances with certain mechanic arts is as fully appreciated as before, it is felt that the object sought can be reached when less time is devoted to chipping and filing and allied operations than has been the practice heretofore. At the other end of the course, the changes suggested are along the lines of discouragement of too early specialization. Narrower and narrower specialization is of course an inevitable consequence of the advance of science. Its operation in the field of practice is reflected in the schools in the form of a steady pressure to devote more time to special branches. We should not, in my judgment, yield too readily to such pressure, and indeed, I should rather see our various courses brought closer together than farther apart. I have not yet exhausted the changes in the headship of departments, for Professor C. Frank Allen has asked to be relieved of his administrative duties in connection with the department of civil engineering. Professor Allen undertook those duties only a short time ago, on the retirement of Professor Swain. He has performed them with tact and discretion, but he has been relieved at his own request in order that he may devote himself more fully to the task of instruction and have some leisure for the literary work in which he is interested. Professor C. M. Spofford has been placed in charge of the department of civil and sanitary engineering. Professor Spofford is a distinguished graduate of the Institute, who, after serving on its instructing staff for some years gained considerable experience both in teaching and practice elsewhere, and returned two years ago as Hayward professor of civil engineering. I am confident that

under his able guidance this important department will be maintained at a high level of efficiency. Another change that calls for comment, although it is only a nominal one, is the change in the title of the department of biology. It was felt that this title did not properly indicate the fact that the biological studies in the department were mainly directed to the discussion of problems connected with the betterment of public health. In this field, Professor Sedgwick, and the able men that he has drawn around him, have done epoch-making work. Their contributions to the solution of the problems of public health are known and appreciated throughout the country and beyond its borders, and, as it is mainly in this field that their influence is felt, it seems reasonable to give to this department the title of Department of Biology and Public Health.

"The Registrar's report gives the usual information with regard to the students. There are fifty-seven more students than last year, the total number 1566 being the largest in the history of the Institute, except for the record in 1902, a year which was rendered abnormal by the change in tuition fees and the conditions of entrance. There is no marked change in the distribution of the students with respect to their origin, all parts of the Union being represented in practically the same proportions as before. The students from other colleges continue to form a large section of the student body; every fourth man at the Institute is a college man and more than 200 of them are college graduates. No serious difficulty is presented in fitting the courses of these men into the curriculum, nor is there any marked difference between their standing and that of the more regular students. The health of the students continues to improve with their length of stay at the Institute, indicating that hard work agrees with them physically. The proportion of illnesses to the number of students in the different years can be ascertained from the report of the Dean, whence it appears that during the year the percentage of illness amongst the first, second, third, fourth and fifth year students was 31, 13, 12, 6, and 0, respectively.

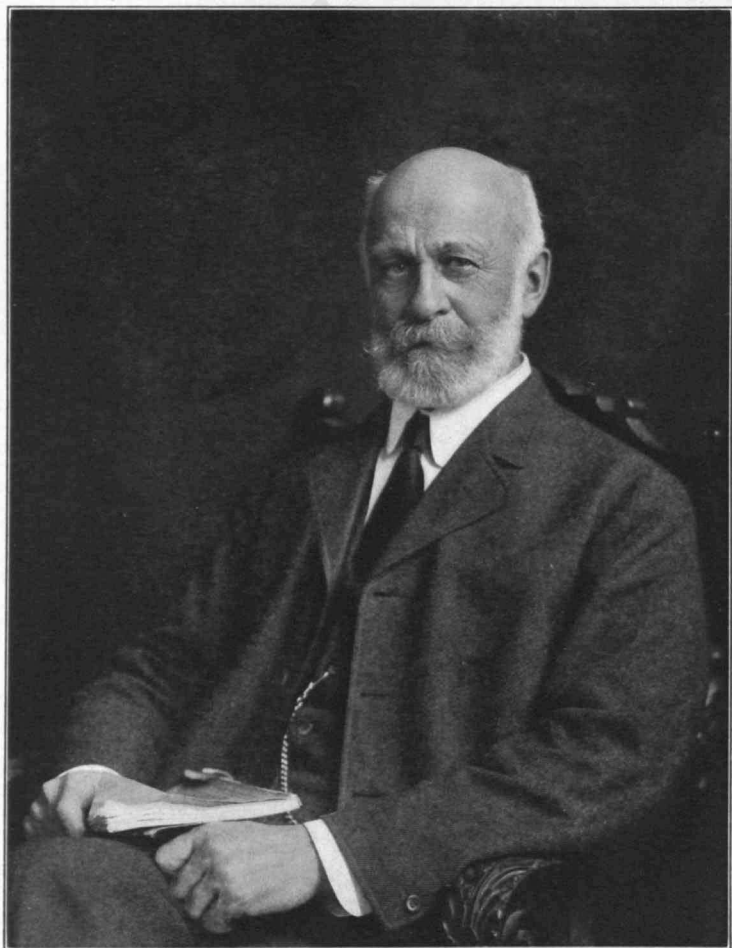
OUTLOOK FOR THE FUTURE

"The outlook for the future is distinctly bright. There is a great work to be done and that work is full of interest and of inspiration for all who appreciate its importance and realize how

much the welfare of the future depends on the efforts of today. The educational problem before us is relatively simple, as the lines of progress are clearly defined by past successes. Improvements are constantly suggesting themselves and our rate of advance would, of course, be much more rapid if our financial resources were greater. Take, as a single example, the growth of what may be called departmental research. The spirit of research is, of course, the very life of a scientific institution, and from the day of the foundation of the Institute, a very large amount of important research has been carried on here by graduate students and members of the instructing staff. A more recent development has been the organization of departments for research purposes, the association of a group of individuals within a department for the purpose of attacking collectively the practical problems of industrial life. Thus the department of electrical engineering is investigating the problem of the improvement of electric vehicles for traction purposes, that of naval architecture has conducted important researches with reference to the resistance and propulsion of ships, while the activities of the research departments of public health, physical chemistry and applied chemistry cover a great variety of practical problems some of which are set forth in the reports of the heads of these departments. Most of these problems arise out of the actual difficulties of our industrial life and their number and importance has grown with such rapidity that today the Institute could very easily treble the size of its research staff, if the necessary space and funds were available. There can be no question as to the importance of this branch of our activities. We have often been reminded of the fact that it was from the research laboratories of Germany that the men went forth who revolutionized the industry of that nation. It is perhaps more to the point to note that our own country is awakening to its needs and our manufacturers are clamoring for men competent to conduct researches, while the supply of such men is far too meagre to meet the demand. In an article on 'Research as a Financial Asset' contributed to the proceedings of the Congress of Technology, a writer who is in a position to speak with authority pointed out that as the result of researches during the last decade, a saving of 240 million dollars per annum had been effected in the nation's bill for lighting. This is not far short of the million dollars a day of which we have heard in another connection, the

difference being that these savings have actually been made, and are not merely speculative. At the same time, it should be noted that such savings represent only a fraction of what may reasonably be expected in the future, even in this single detail of our expenditure. Our task is to train men to apply the method and the spirit that have brought about these improvements to every phase of our industrial life.

"Closely allied with the strictly educational problems that lie before us is the problem of rebuilding the Institute in the right way. To do effective work, we must have proper facilities and we cannot have such facilities without most careful study of the needs of today and some provision for the demands of tomorrow. No country in the world has spent money more freely on buildings for educational purposes, but unfortunately much of the expenditure has been wasted. We must profit by the experiences of others and fulfill our duty to the community that supplies the means by putting up buildings that are models of economy and of convenience. These buildings must, of course, be worthy of a great institution of learning, and if they are in Cambridge, they must rise to the level of the great architectural possibilities that the river bank site presents. It is to be hoped, however, that the desired results can be obtained with buildings that are classic in their simplicity and in their freedom from unnecessary ornament. To make provision for the building of this new Technology is the chief problem that immediately confronts your Corporation. The only serious difficulty is the financial one, but I have no doubt that the large sum of money needed will be forthcoming if only every member really puts his shoulder to the wheel to set things moving as they should. For now that half a century of experience has so amply demonstrated the usefulness of the Institute, it is possible to repeat without any misgiving the statement of President Rogers when making his first appeal for public support, 'I am sure,' he said, 'that I speak from no impulse of mere enthusiasm when I say that this new undertaking presents an opportunity of practical beneficence in connection with education which is not only peculiar, but without precedent in this country. My experience as a teacher and my reflections on the needs and means of industrial instruction assure me that this enterprise, when fully understood, must command the liberal sympathy of those who aim to make their generosity fruitful in substantial and enduring public good.'"



PROFESSOR FRANCIS W. CHANDLER

AN APPRECIATION OF PROFESSOR CHANDLER

The Impress he has made on the Department of Architecture a goodly heritage

Professor Francis Ward Chandler, who has recently retired from the department of architecture after a service of twenty-five years was born in Boston in 1844, and was educated at Lancaster Academy being graduated in 1861, at the time when the call came for volunteers for three years' service. He enlisted in the Fifty-third Massachusetts Regiment, and served during 1862 and 1863 as a private. His war record, of which like many good soldiers he was loath to speak, was, from the testimony of his friends, one of a steadfast courage characteristic of the man. On his return to Boston he entered the office of Ware and Van Brunt in which he remained from 1864 until 1867 when he went to study in Paris where he stayed two years. The winter of 1869 found him an assistant in the architectural department of the Massachusetts Institute of Technology under Professor William R. Ware. In 1871 he went to Washington and became an assistant in the government office in the Treasury Department, remaining until 1874 when he returned to Boston and became the partner of Mr. Edward C. Cabot, forming the firm of Cabot and Chandler, and remained in active practice for some years until he became professor of architecture at the Institute. He has been a member of the Boston Art Commission since 1898, and has written several works upon architectural subjects. He has left a record as the head of the architectural department at the Institute which is rare.

One of the pioneers in architectural education in America, he has by his admirable work inspired much of the Architectural teaching which has been done in the last two decades. The department has not only gained numerically under him, but has developed strength and security. But it is neither the executive nor administrative ability of a teacher that tends to create the best results in his students, especially in those who are devoting themselves to a profession, and more than all to a fine art, which, from

its eclectic character, makes it subject to ignoble use and to being the sport of inexperience and poor taste. He upheld the best traditions of architecture as an art, and as a profession, and united with a wise catholicity of spirit, a sympathetic appreciation of the difficulties of this study which endeared him to his associates and pupils. While recognizing the axiomatic fact that architecture was expressed in terms of structure, he comprehended also that its principal claim to attention is that it is one of the greatest of the arts, and he constantly fostered and encouraged imaginative work. His spirit of cordial receptivity to ideas, of desire to assist his men, of willing co-operation in thought even with untrained minds, cannot be too highly praised. Here existed the best type of sympathetic, judicial care, which produced an intimate comradeship.

The impression that he has made upon the department is distinctly one of an unobtrusive but none the less powerful advocacy of architecture as a fine art, and not merely as of utilitarian service; of its noble possibilities, not merely of its necessary processes, and he has left an organization which will do well in following his example.

As Professor Chandler is now professor emeritus, the regret that the department has in his resignation is tempered by the knowledge that his personal influence will continue to exist.

C. HOWARD WALKER.

Union Dining Room Very Successful

The Union dining room has at last struck its gait and the success of the enterprise is due entirely to the satisfactory way in which it is being conducted. Mr. Colton, the steward, is now serving his second year and seems to understand just what the students want. The attendance averages about five hundred for luncheon; a large number take their breakfasts and dinners at the Union and it is liberally patronized by the various professional societies and clubs.

The new Technology fund is likely to demonstrate the resources of Institute men in a wonderful way.

WORTHY RECORD OF PHYSICS DEPARTMENT

First to establish a Laboratory for systematically teaching the principles of Physical Measurements—First courses in Electrical Engineering and in Electro-chemistry established by Department—Numerous Researches have directly advanced the Industrial Arts

It is possible, in a rough way, to estimate the economic importance of engineering work, in terms of the capital investment. In many cases, however, modern structures such as subways, bridges, power stations, and skyscrapers create new values. They do this by developing new channels for manufacture and commerce, and by making possible that aggregation of population and industry which is so marked a feature of modern life. The economic value of the engineering skill which plans and builds such structures may in its turn be measured in terms of the values thus created.

The more subtle things of life do not lend themselves to such ready appraisal. He would be a rash man who should undertake to estimate the cash value to a community of a university, a library, an art museum or a great orchestra. Less easily still can one measure the worth of a group who work for civic betterment, or of public-spirited citizens who give much time to unpaid service on the boards of public and private institutions.

One must bear these facts in mind when undertaking a discussion of any special phase of college work. The engineering courses may be graded according to the professional work accomplished by their graduates. How shall one measure the work accomplished in non-professional departments, in pure science or the fine arts? There is no recognized unit in terms of which inspiration may be computed. This, however, may properly be asked. Have the men who took their majors in any department carried away inspiration for the work of mature years? Have they become leaders? Have they contributed to the sum of human knowledge, or advanced the welfare of the communities in which they dwell?

The department of physics at Technology has been a part of the Institute from its beginning. In "The Objects and Plan of an Institute of Technology" issued in the year 1860, Prof. William B. Rogers wrote, "Another leading department of the School of Industrial Science would be that of general and applied physics," and gave a detailed plan for instruction in this subject. Later, in the "Scope and Plan of the School of Industrial Science," a report to the Massachusetts Legislature published in 1864, he set forth the desirability of laboratory instruction in physics whereby, in addition to the usual lecture courses, the student might be taught the processes employed in various physical measurements. Here was the central thought about which, as a crystal forms about its nucleus, Technology was to take definite shape.

In our own day, when every secondary school puts a large variety of scientific apparatus directly into the hands of its pupils, it is difficult to realize the paucity of equipment in the colleges of half a century ago. In 1850 the University of Heidelberg had the only physical laboratory in which a German student at that time could do practical work. There were private laboratories, it is true, notably that of Magnus at Berlin where among others Wiedemann, Helmholtz and Tyndall were trained in the methods of research. The great University of Berlin had no physical laboratory until 1863. Lord Kelvin had carried on experimental investigation from the time when he assumed the chair of natural philosophy at Glasgow in 1845. His laboratory was a disused wine cellar in one of the university buildings, and enthusiastic students volunteered to share in the labor of observation. But both at Berlin and at Glasgow the work was wholly optional.

"The earliest institution in which laboratory physics was pursued according to a systematic plan for its educational value, and was a required part of the work necessary for a degree, is, we believe, the Massachusetts Institute of Technology in Boston."*

The difficulties encountered at the outset postponed for a few years the opening of the proposed laboratory of physics. There was no precedent to guide, and no apparatus, or funds for its purchase, immediately available. For two years, indeed, President Rogers himself gave fascinating lectures in this subject. In 1867 Edward C. Pickering was appointed Thayer professor

* F. Cajori: "A History of Physics 1899," p. 294.

of physics. From the beginning his heart was in the new work. He labored with indefatigable perseverance, devised a series of experiments, prepared the necessary instructions in manuscript, and in October, 1869, the physical laboratory of the Institute was opened to the third-year students. They were the first in the world to undertake such work as a part of the systematic instruction required for the completion of their undergraduate course.

The opportunities afforded by such a laboratory were promptly recognized. Special investigations were begun by a number of advanced students and in the summer of 1872 the laboratory was opened to a group of college professors who sought the use of its equipment. In 1873 the Corporation of the Institute, acting upon the recommendation of Professor Pickering, established a course leading to a degree (now Course VIII.), the chief emphasis of which was laid upon the various branches and applications of physics.

In January, 1877, after ten years of devoted and fruitful service, Professor Pickering resigned his charge to assume the directorship of the Harvard College Observatory. No one could have begrudged him the great honor and opportunity which this signally important position carried. His loss, however, must have been sorely felt by those upon whom devolved the responsibility for guiding the fortunes of the young institution through the period of financial stress which followed. Happily for the department one of the earliest students of the Institute had specialized in physics even before the establishment of a course in this subject, and had been continuously engaged in the work of instruction from the time of his graduation in 1870. He had caught the contagious enthusiasm of the founders and had been trained by the great scientist who developed the pioneer laboratory of physics. His productive scholarship was guaranteed by the high quality of the research which he had already conducted. The passing of the years has left no room to doubt the wisdom of the choice then made. It is stating a simple fact to say that from the day he assumed the Thayer professorship of physics as Pickering's successor, no member of the Technology Faculty has lived more completely for his work or devoted himself more unstintedly to the duties of his position than Professor Charles R. Cross.

In the rush of the work-a-day world, we seldom pause to note the compelling power of great principles. The Tech student

of today looks forward to a new and glorified Institute. All of us take pride in the steady progress of our Alma Mater, in the world-wide recognition of her leadership, in the fair prospect which unfolds before her. But more and more as the perspective of years builds itself behind us, we recognize that the distinctive element of the training which the Institute now gives and has always insisted upon, lies in the light which guided the founders through the dark days of the beginning, in their adherence to the cardinal truth that education must deal with realities and that the only basis for success is honest, unrelenting toil. In no department of the Institute has this noble inheritance been withheld. But especially in the department of physics, I believe, our students have been trained to work and to know that true science may tolerate all things save only indifference and deceit.

The limited financial resources of the Institute at the time of the appointment of Professor Cross restricted the staff to the professor in charge and two assistants who were graduated from the course in physics in 1876. But it was the number of the instructing staff and not the strength of the department which was thereby limited. No student who came under the kindly yet sharp-sighted care of Professor Holman needs any word of mine to recall the influence which he exerted. To unusual excellence as a teacher he added an aptitude for laboratory work which has rarely been equalled. His experimental skill amounted to positive genius. The laboratory of general physics and the electrical laboratory of today owe much of their exceptional character to his unfailing wisdom and devotion. If the department had no achievement upon which to rest its claim to distinction other than his work in the precision of measurements, it would still rank among the foremost contributors to the advancement of the cause of physical science.

The interest of a human life, as of the drama, lies in the struggle between opposing forces which it necessarily presents. Few struggles have been more sympathy-compelling, yet heroic and inspiring, than the contest between this teacher's mental vitality and his waning physical force. After the inroads of disease had compelled Professor Holman to sever his connection with the Institute he produced a work of keenest insight and fundamental truth. His "Matter, Energy, Force and Work" is a notable addition to the literature of science.

The historian who in years to come shall write the story of the Era of Applied Science, will summarize the closing decades of the nineteenth century under the caption "Age of Electricity." We adjust ourselves so rapidly to the kaleidoscopic changes of habit and thought which new invention and discovery are forcing upon us that we often fail to grasp the significance of the revolution which is daily taking place. One must think hard to think back to days when one could not flood a room with light by pressing an insignificant button; when it was not possible to talk halfway across a continent by a simple movement of the arm, without leaving one's desk. It is so simple to send greeting or farewell to a friend in mid-ocean, so easy to be hurled through a mountain or beneath a river by the trifling motion of an inconspicuous lever, that we wonder if there ever was a time when such things did not take place.

It is, therefore, somewhat difficult to realize the fact that hardly more than thirty years ago, the Corporation of the Institute should gravely debate the expediency of giving instruction in the new mysteries of electricity. It had always been an elusive agent, but now one could talk by its aid, with more or less success, and it was even possible to light a building by incandescent fibers when the lamps and dynamo were in good working order. Clearly enough, here was a field for the young engineer; and through the persistence of Professor Cross a course of optional lectures on applied electricity was given in 1881. The success of this course was convincing, and in September, 1882, the first course in electrical engineering to be given in the United States was definitely begun.

On reaching its majority this course (as is often the case with human offspring) assumed the direction of its own affairs. For twenty years, however, it was fostered by, and was a part of, the department of physics. The number of its graduates is exceeded only by Courses I. and II.

The difference between the technical school and the college of liberal arts is wider than the divergencies of their curricula. The one looks backward and seeks to preserve the inheritance of the past, in an atmosphere of quiet and well-ordered leisure like that of the cloister from which it sprung. The other is immersed in the sweeping tide of modern life; its business is with the scientific achievement of today; its interest lies in the future. The

professor of literature may repeat his lectures without changing a syllable for a dozen years. The professor of applied science feels that he is doing well if, with annual revisions, he can keep his lectures within a year or two of current engineering practice. To anticipate its bewildering advance would require not a professor but a prophet.

The course in electrical engineering had been established in response to an existing demand. The next step taken by the department was guided by a vision of the future. The laboratory of heat measurements, established in 1884, was absolutely the first of its kind in the world. It looked forward to a day when industrial processes dependent upon heat should be subjected to exact thermal control; when the large consumer should buy coal not by weight, but by its calorific value; when the builder should concern himself with the fire-resisting qualities of his materials. Even today the public has not been educated to demand the conservation of material resources which is possible under the rigid application of such laboratory tests. More and more, however, the manufacturer seeks the aid of the engineer who can enlarge his profit by minimizing loss and waste. The prophecy made by Professor Cross in 1884, that the laboratory of heat measurements would ultimately be comparable in size and scope to the laboratory of electrical measurements, bids fair soon to be realized.

One of the most striking phases of the development of physical science in the closing decades of the nineteenth century was the obliteration of the boundary line between chemistry and physics. The application of the methods of the physical laboratory to the study of chemical reactions produced an entirely new science. The development of physical chemistry has profoundly influenced both parent sciences. It has revolutionized certain phases of chemical instruction. It has opened a new field for the application of physics. From the technical standpoint the most fruitful results have come from the study of the mutual transformation of chemical and electrical energy. Out of this study the course in electrochemistry has grown.

The development of this course at the Institute has been chiefly in the hands of a graduate from Course VIII. who went to Germany in the early nineties to get, at first hand, inspiration from the leaders in the new science. On his return, in 1894, an extended

course of lectures in electro-chemistry was given, and a laboratory for physico-chemical measurements was organized. The growing importance of this work was recognized in 1901 by the establishment of a separate course in electro-chemistry, under the charge of Professor Goodwin. In taking this step the Institute was again in advance of all other technical schools in the United States.

In original research, that touchstone of productive scholarship, the department of physics has also established a worthy record. At its very beginning an investigation was made by one of the students upon the relative efficiency of different forms of petroleum burners. Another dealt with the determination of the focal lengths of microscopic objectives, a matter which was then in a very confused state. Still another, a study of various tones including those of the human voice, became well known in connection with the history of the speaking telephone. A long series of investigations of the problems which arose in connection with the growth of telephony was carried on through many years. The head of the department came to be recognized as an authority upon this matter, and his services as an expert were in frequent requisition during the long litigation in which the earlier patents were involved. A study of the friction of leather belts upon pulleys, made many years ago, gave data which have never been surpassed. Accurate studies of the melting points of refractory metals were made by thermo-electric methods at an early date. The bomb used in determining the calorific value of fuels was greatly improved, and put into a shape adapted for practical measurement. Many extended studies have been made on the candle power of arc and incandescent lamps, on the distribution and variation in illumination under differing conditions and on the various standards of light proposed or actually employed. Much work on the generation and properties of X-rays was carried out at the time of Röntgen's epoch-making discovery. Probably the first diagnostic radiograph taken in Boston by the use of the X-ray was made in the Rogers laboratory of physics, and the facts obtained in these studies became of practical value to the city of Boston when the X-ray first came to be used in its hospitals under the direction of Dr. Francis H. Williams.

Were it desirable or necessary, the list might be greatly extended. The energies of the department, however, have always been devoted primarily to teaching, and it is to the graduates from the

department that we must look for a final answer to the questions as to its influence we have raised. And in this direction, also, we find much to stimulate our pride and our confidence in Technology.

Though few in number, owing to the non-professional character of the course in physics, the fifty-four graduates from this department include some of our most distinguished alumni. It is, indeed, doubtful whether any other course can furnish so large a proportion of men who have attained the highest ranks of their professions. The limits of this article forbid an exhaustive enumeration. The following names, however, may be briefly mentioned: Prof. Silas W. Holman, '76, has already been referred to. Prof. William H. Pickering, '79, of the Harvard College Observatory, is well known to the astronomers of the world for his studies of the moon and discovery of the ninth and tenth satellites of Saturn. To the late A. C. White, '82, is commonly ascribed the invention of the "solid back" long distance telephone transmitter, now in general use, which may be said to have finally solved the problem of long distance telephonic communication. The valuable work of Prof. H. M. Goodwin, '90, in connection with the course in electro-chemistry at the Institute has already been outlined. Prof. George E. Hale, '90, almost immediately upon his graduation, attained distinction for solar research. The founder of the *Astro-Physical Journal*, and director for a number of years of the Yerkes Observatory at Chicago, he challenged the attention of the scientific world with the wonderful results obtained by the use of the spectro-heliograph, an instrument invented by him while still an undergraduate. For several years he has been director of the Carnegie Solar Observatory at Pasadena, Cal., and in his special field of solar research, without question, stands first among the astronomers of the world. C. G. Abbott, '94, is director of the Smithsonian Astro-Physical Observatories at Washington and Pasadena. He has established the existence of a secular variation in the heat received by the earth from the sun, and has no equal in this country in his chosen field of work. G. V. Wendell, '92, is professor of physics in Columbia University. Margaret E. Maltby, '91, is professor of physics in Barnard College, the woman's department at Columbia. William J. Drisko, '95, is associate professor of physics at Technology. F. L. Bishop, '98, is professor of physics and dean of the School of Engineering at

the University of Pittsburgh, and several graduates of later years are professors of physics in different institutions. Other graduates are in the employ of the United States at the Bureau of Standards, Washington, holding positions of responsibility, among whom George K. Burgess, '96, is well known as an authority in temperature measurements. Of the fifty-four graduates, nine are women, of whom three are married, thus establishing (were experimental proof at all necessary) the entire compatibility of pure and domestic science.

The writer ends this record with a deep sense of its inadequacy as he has presented it. Let him quote in closing from some manuscript notes by Professor Charles R. Cross, to whom much of the information here presented is owed:

"While the Institute has graduated many men who have become eminent, in my opinion its great work has been, on the one hand, the part which it has played as a pioneer in the scientific education of broad-guage engineers; and on the other the fact that it has uniformly held its candidates for graduation to a high level of training, scholarship and character, so that its diploma has been in some sort a guarantee to the public that one possessing it, though not necessarily in any way a remarkable man, was at least competent, well-informed in his specialty, diligent and honest."

FRANK M. GREENLAW, '90.

Register of Former Students Progressing

Work on the forthcoming Register of Former Students is proceeding rapidly and the new register will be a very accurate record of every former student whose address is obtainable. For nearly five years the alumni office has maintained a special department whose efforts are devoted to keeping in touch with the whereabouts of alumni, whether graduates or not. Nevertheless, there were some 1200 of the 10,000 former students for whom the office had no addresses. These names were printed in a pamphlet and distributed generally to the alumni. Since then the mails have been filled with letters from interested friends supplying addresses of men, many of whom the office has never been able to locate. Such spontaneous coöperation is as unusual as it is satisfactory.

PROFESSOR LANZA MADE EMERITUS

Head of Mechanical Engineering Department retires after forty-one years of service—His contributions to the profession of Engineering have been many and important

Professor Gaetano Lanza, after forty-one years of service at the Institute, has retired from active teaching and has accepted the honorable distinction conveyed in his appointment as professor emeritus. Forty-one years of active association with our constantly expanding organization—twenty-nine of these in the responsible charge of its largest department—graduating a far larger number of students than any other course, and giving instruction to the students of nearly every other department, it may well be thought that his influence should make an impression upon the purpose and policy of the school, and upon the body of its graduates. And this impression has been made—deeply made.

Professor Lanza has always stood for high educational ideals. It would have been so easy to have turned the instruction toward the specialization of information, instead of toward the principles underlying the profession. The student is desirous of finding immediate applicability as the result of his work. The student's parent is anxious that his son should come out ready for responsible command. The prospective employer is impatient if the school graduate comes to him not skilled in technical method. Everything seems to conspire in tempting the schools to produce trained men, instead of educated men. Professor Lanza has borne an honorable and an important part in keeping the instruction at the Institute always turned in the direction of producing educated engineers, of graduating men trained in thought. He was professor of theoretical and applied mechanics, and he did not allow his students to forget the mathematical foundations of their profession. When he took charge of the department the practice of mechanical engineering was largely conducted by handbook formulæ and the judgment of the practitioner. He brought in scientific reasoning and mathematics, so that students were taught not to use a formula unless they knew it to be correct, and how it



PROFESSOR GAETANO LANZA

was derived. In this way he built up the confidence of the men in their conclusions in a manner impossible where reliance is placed primarily on handbook formulæ. The impetus given by this firm planting of the work upon a scientific foundation was immediately apparent. A few months after Professor Lanza assumed charge President Walker in his *Report* of December, 1883, wrote: "Professor Lanza's conduct of this most important department—now become the largest in the Institute—has been marked by singular force, comprehensiveness and soundness of judgment."

Before he was placed at its head, the department of mechanical engineering was the third in the school in its number of graduates. The total number furnished by eighteen classes, up to and including 1885, was but seventy-five. The class of 1886 which was the first to make its selection of courses after his promotion to the control, graduated twenty-three students as mechanical engineers, and continuously since that time the department has numerically outranked all others. Its graduates occupy responsible positions, and have been sought for by engineers all over the country. At the present time the demand is such that five times as many positions are annually offered as there are graduates to fill them.

As an administrative officer in his department Professor Lanza showed great good judgment, and by his consideration for his associates, and the loyalty of his adherence to the obligations implied in their appointment he won their enthusiastic support.

It was his policy, after giving a man charge of a branch, to leave him so unhampered as to encourage the sense of responsibility, thus making him take pride in the work assigned him and exciting his endeavor to improve the course. This is regarded as one of the reasons for the continued development of the course, which has been marked for the last fifteen or twenty years.

Professor Lanza made himself of easy approach to the students. He opened his office and his house alike to them, and many of the students made a point of going to his home at frequent intervals.

Professor Lanza was early alive to the importance of laboratory instruction. Before he took charge of the department of mechanical engineering he had developed a laboratory of applied mechanics, with a testing machine of 50,000 pounds capacity, and capable of determining the transverse strength and stiffness of beams

twenty-five feet long, as well as of many of the framing joints used in practice.

Immediately on taking charge he commenced the establishment of a laboratory of mechanical engineering, and the catalogue of the Institute issued in 1883 gives a list of apparatus which it "will contain." The space to be devoted to this purpose was something less than half of the basement floor of Rogers Building. At this time, though it was fifteen years after the Institute had commenced graduating students, so little had been done in technical exercise, that the catalogue states as a promise for the future, "It is expected during the present school year to make one or more tests of the evaporative power of a boiler."

Professor Lanza was also one of the first to see the necessity of making tests of materials upon specimens of full size, so that the results obtained should be of commercial value. His work on timber practically revolutionized the figures that had been used by engineers before his results were published.

The apparatus used for illustration was also of working size, so that the students' laboratory experiences were all in the line of professional preparation.

He also used much care in the selection of subjects for this work so as to make the student's effort not a mere exercise, but a search for information. Thus from the outset the laboratories of applied mechanics and mechanical engineering have been research laboratories.

Gaetano Lanza was born in Boston, September 26, 1848. His parents were Cavaliere Gaetano Lanza, of Palermo, Sicily, and Mary Ann (Paddock) Lanza, of Pomfret, Vt.

In 1859 the family moved to Charlottesville, Va., where he attended school, and where at the age of seventeen he entered the University of Virginia. At college he particularly distinguished himself in mathematics, and he received the Courtenay Medal for proficiency in this subject. During the last year of his course he was appointed assistant instructor in mathematics. In June, 1870, he was graduated with the degree of bachelor of science and of civil and mechanical engineering. He continued to teach at the university the next year, and in the fall of 1871 he came to Boston to take the position of instructor of mathematics at the Institute of Technology. In 1872 he was appointed assistant professor, and in 1875 professor of theoretical and applied mechanics; and in

1883 he was placed in charge of the department of mechanical engineering. He retained this important position at the Institute until 1911, when he retired as professor emeritus, receiving as a recognition of his valuable service and as a mark of the esteem in which he is held, and an acknowledgment of the great influence he has had in forming the character of its teaching, a pension from the Institute funds.

In 1891 Professor Lanza married Miss Jennie Dice Miller, of Charlottesville, Va. Their home at 22 West Cedar Street was opened to the instructing staff and the student body, to other friends of the Institute, and to persons interested in mathematics and mechanics with a cordial hospitality that has added a tone of personal friendliness to the associations which he would not limit by formalism, and which have in many cases grown into endearment.

Since his retirement from teaching Professor Lanza has removed to Philadelphia, where he is employed as a special consultant by the Baldwin Locomotive Works. The loyalty of his former associates at the Institute is gratified by the retention of his name at the head of their department, and by the maintenance of his spirit as a beacon for their effort.

Professor Lanza throughout his professional life has been an untiring investigator. Among the best known results of his work, particularly because of their effect in changing the figures previously used by engineers, and because of their wide adaptability in the operations of so expanded a business as the building industry, were the tests of timber which he was the first to undertake on full sized specimens. His tests of framing joints, of tile arches, of reinforced concrete, of locomotive connecting rods, on springs, on the balancing of high speed machinery, have all been of great professional value. His intellectual activity in engineering matters led to the invention of a continuous indicator for steam engines, which he patented in 1907.

Professor Lanza has written much, his publications amounting to nearly one hundred in number. His chief work in this line was his "Applied Mechanics" first issued in 1885, and extended from time to time until it has grown from a small volume to a complete treatise, numbering in its ninth edition 929 pages. His latest book "Dynamics of Machinery," was issued in 1911.

He is a member of many organizations and societies chiefly

devoted to science and engineering. A full list of these connections shows the intensity of his devotion to his professional association:—fellow of the American Academy of Arts and Sciences; member of the International Society for Testing Materials; member of the American Society for Testing Materials; member of the American Society of Mechanical Engineers; member of the Boston Society of Civil Engineers; member of the American Mathematical Society; member of the Society of Arts of the Massachusetts Institute of Technology; member of the Appalachian Mountain Club (was vice-president for one year); member of the Mathematical and Physical Club (president for five years); member of the Society for the Promotion of Engineering Education; associate member of the American Railway Master Mechanics Association; member of the Circolo Matematico di Palermo; member of the Società Italiana per il Progresso delle Scienze; member of the British Association for the Advancement of Science; member of the Public Art League; member of the Colonnade Club of the University of Virginia.

He has served on numerous committees of these various societies, and at present holds the following appointments:—American Railway Master Mechanics Association,—member of committee on main and side rods; American Society Mechanical Engineers,—member of committee on involute gears; American Society for Testing Materials,—chairman of the committee on standard methods of tests,—member of committee on standard specifications for steel,—member of committee on standard specifications for cast iron,—member of committee on steel springs,—member of committee on reinforced concrete,—chairman of advisory committee on tests and testing apparatus,—member of joint committee on reinforced concrete (this is a joint committee of four societies).

Professor Lanza was active in the undertaking which resulted in the affiliation of the Mechanical Engineering Society of the students with the American Society of Mechanical Engineers.

He is a charter member of the Mathematical and Physical Club. This is a club composed of Harvard and Technology professors, and holding monthly meetings at the members' houses. He has always taken an active part in its affairs, was for many years its vice-president, and for several years past, or since the death of Professor Benjamin Pierce, has been its president. One of his former students writes:—

"I hope you will lay some stress upon his long and honorable connection with the Mathematical Physical Club and his interest in the purely intellectual side of his work. It is not merely by its industries, or its wealth, or its natural resources that Massachusetts leads all the other states of the Union, but by the devotion which its citizens have shown for the things of the brain. As man progresses from the savage, surrounded by a hostile world, always on the verge of exterminating him, he finally reaches, as the height of development, a position where he finds that the inner world is the important world, and the desires of the soul and brain are so much more real than the wants of the body that he sometimes sacrifices even life itself to obtain them."

Professor Lanza has been a good exemplification of this spirit. Though his life work has been so closely connected with the application of scientific knowledge to the arts by which our physical life is ameliorated, he has always kept his thought and his imagination alive to the purely intellectual interests.

In 1907 the king of Italy, his Majesty Victor Emmanuel III, decorated Professor Lanza as Cavaliere dell'Ordine dei Sante Maurizio e Lazzaro, a high recognition of great attainments.

The Massachusetts Institute of Technology has been fortunate in having so long a service, at the head of one of its great departments, from a man of such great power, such high ideals, such tireless industry and so pure a life. Let us hope that in all its branches this honorable record will be preserved.

JAMES P. TOLMAN, '68.

Intercollegiate Architectural Contest

Arrangements have been made with Columbia, Harvard, University of Michigan, University of Pennsylvania, Cornell and Technology to hold an architectural competition in the spring. Preliminary sketches will be handed to the judges, February 28, and drawings will be completed April 3. Competitors will be obliged to rely entirely upon their own resources as their work will be done in little curtained rooms where each student will live to himself until the work has been completed. While this is not in line with commercial conditions it is believed that it will be an excellent test of the relative ability of the students. Details are given in Architectural Department Notes.

A "TECH" FOR CANADA

Special Commissioners have visited the principal scientific schools of the world and declare that it has no superior

The following article from the *Boston Transcript*, will be of particular interest to Tech men:

Rev. George Bryce of Winnipeg, said this week, with reference to the Massachusetts Institute of Technology, that there is no school in the world that is ahead of it, and there is probably no man in the world better qualified to express an opinion on this matter than Doctor Bryce, who did so as the educational specialist of the Royal Canadian Commission on Industrial and Technical Education. This little company of eight men is now in its second year of research in the world's methods in education and has reached Boston to investigate the technical schools here and in Massachusetts.

The needs of education in Canada were the reasons for the creation of this royal commission. It was realized on many sides that Canada is in need of trained workers and it has also been realized that there is a very practical problem as to the means of keeping boys in school after the age of fourteen or fifteen. In a general way the ordinary schools have not been thoroughly successful. The manufacturers of Canada have realized the urgent need of trained technical students, not for the superintendents but for more lowly positions, and their associations have been urging the Canadian Government to take the matter up in a thorough, scientific way. At the same time the labor unions viewed the matter similarly from the standpoint of better labor and have been making the same appeal.

The Commission has therefore been created, and includes a president, Dr. James W. Robertson of Ottawa, and seven other members, Hon. John N. Armstrong of North Sydney, N. S., Rev. George Bryce of Winnipeg, Ernest Belanger of Montreal, David Forsyth of Berlin, Ont., and James Simpson, Gilbert M. Murray

and Thomas Bengough of Toronto. The last named, a skilled stenographer, is secretary of the Commission, while Mr. Simpson was the choice of 125,000 labor men, who suggested his name to the authorities.

INSPECTING OTHER "TECHS"

A subdivision of the work has been made, for it covers a large subject in its relations not only to education, but to manufacturers and other industries, and to Dr. Bryce has fallen the inspection of the polytechnic schools. He has seen practically all of importance in Europe, and his words of commendation of the famous Boston institute are entitled to fullest weight. He is one well known in the educational world, the founder of Manitoba University, is its president, and has been through many years its constant upbuilder. A relative of Ambassador Bryce, he has many of the personal characteristics of the Bryces. His grasp of the world's educational field is marvelous, for despite the hundreds of institutions he has visited in the past two years, he has an instant and clear view of any individual institution and a happy faculty of setting forth its salient points. He presents in his running comments the most comprehensive sketch of the comparative merits of the world's great schools. Other members of the committee looked after the lower schools while Doctor Robertson, formerly president of McDonald College, near Montreal, who is exceedingly strong as an expert in agricultural education, cared for such schools. "In this," said Doctor Bryce, "we in Canada have nothing to learn from the schools of Europe," although in another of his specialties he noted that in forestry schools and forestry methods Germany leads the world.

The Commission spent its first nine months in Canada, sitting in more than one hundred towns and cities and taking evidence. The act that created it gave it the authority of a court to administer oaths and compel replies. This time was devoted largely to determining industrial conditions, the relation to them of wages, so that for the foundation of the research it was determined just what is the condition of manufacturing Canada, and next in order, in what ways may education improve the laborer and his product. In this connection Doctor Bryce finds that the work of the manual training schools and elementary schools of the higher

grade is very important. These seem well established in Canada, and he forecasts important extensions of existing systems.

During nine months of last year the Commission worked its way across Canada, going thence down the west coast to San Francisco and Los Angeles, coming back through St. Louis, Indianapolis and Pittsburgh, in each of which stops were made and observations taken. Then a time was spent in Lower Canada among the French-speaking people, following which there were some weeks occupied in preparing a preliminary report, for the Department of Labor. The departure was taken for Europe on the first of April of the present year, and the Commission is now on the first of its last series of visits.

ENGLAND'S EQUIPMENT

In England particular attention was paid to the schools of the manufacturing places, Manchester, Leeds, Bradford and Liverpool, where there are many excellent night schools, and thence to the new Polytechnic at Glasgow, one of the finest in the world. The Scotch are eminently practical and this new school presents many splendid features. In Edinburgh, a more classic city, it is the common school system that excited the admiration of the Commission—"a system as fine as any on this earth," said Doctor Bryce.

Returning to London the way was next taken direct to Berlin. There was everywhere in Germany a splendid reception to the visitors. Naturally the standing of the Commission enlisted the strongest influences of the British embassies, but the cordiality did not stop here. There had been a fear that the manufacturing establishments might maintain a closed-door policy; in fact, rumors of that nature are common. But the realization was the reverse; the Krupps opened their immense establishment in all desired details, and their lead was followed by the other great German firms. It may thus be seen that the Commission in its work has acquired much besides merely the educational phases of the situation, and has gone pretty deeply into underlying mechanical and manufacturing needs. So faithfully has the investigation been carried on that a ton or two of notes have accumulated to be digested sometime presently, when the report is expected to occupy about four of the blue books of the Canadian Department of Labor.

The Charlottenburg Polytechnic—Technische Hochschule is

the local appellation—is of interest to all educated Bostonians, for it is that institution that most nearly resembles the Massachusetts Institute of Technology and is its closest rival in the world in the higher technical education. In one item it far surpasses Tech, for it is marvelous in its architecture. This has been possible because the school is a favorite of the emperor, who is also the king of Prussia. The German Empire does not take much interest in education, but the emperor gives largely from his private purse. The Institute is of collegiate rank and magnificently equipped with splendid laboratories and almost perfect courses. It is but a short time since Doctor Maclaurin visited this school, for "Here," he says, "there is a school so closely in the same line with the Institute of Technology that the keen eyes of the faculty are fixed on our work, and if there is any place in the world in which we can learn about our own doings, it is in this fine school in the suburbs of Berlin."

Dresden University and that of Leipsic were next visited, but not being technical schools they hardly enter into the present consideration. Then again the course was to the south of Bavaria where at Munich the fine special schools received a good deal of attention, and next the party repaired to Zurich. Here there is a very ancient university, supported by the canton and, besides the Federal Technical School, is the only one in all Switzerland. It is very important as one might expect in a nation whose watches and minor handicrafts insure it a steady mechanical business of magnitude. "This institute in Zurich," said Doctor Bryce, "seems to us to be quite as practical as that at Charlottenburg, and, moreover, being in a republic, it seems to have a freedom of spirit that is peculiarly its own among European institutions." It is about the same size as Tech, the German institute surpassing both by about a thousand students with a registration of twenty-five hundred. The public schools at Zurich, and indeed all through Switzerland, are excellent. Lucerne was next visited with an old university in which the science side has been well developed.

SCHOOLS OF SWITZERLAND

The University of Geneva is especially worthy of note, while at Lausanne, a few miles distant on the north shore of the lake there is another. The feature of this east end of Lake Geneva is the

excellent opportunity for the education of young girls. There is here a delightful country with magnificent scenery, a climate that is mild and rates of living that are reasonable. Families may readily settle here for a while for the education of the children. At Lyons there is a fully developed university while the Sorbonne at Paris has a world-wide reputation.

Here the party divided, the French member of the committee taking the cities of the country, not forgetting Grenoble, and he is the authority for the statement that the French are maintaining most excellent schools in which the trades are really taught. It is not the smattering nor the combination of "half-times," but a steady, practical working in just the processes that are needed in the trade.

The commission had, through a good deal of its travels on the Continent, the company of Frederick H. Sexton, M. I. T., '01, who is the best technical school authority in Nova Scotia, in fact the head of the Government technical institute at Halifax. Professor Sexton is a graduate of the Tech mining courses and selected for his mate for life Miss E. M. W. Best, M. I. T., '02, a graduate of the chemical courses.

One of the groups made the tour of Denmark, which has fine general schools, while Doctor Bryce went again through Germany taking the Rhine district; Strasburgh has a university, but no polytechnic, but its public schools are most excellent, with remarkable health inspections, in some divisions of which they are world's pioneers. There is here a good technical school, but of the lower grade. This the commission does not consider a disadvantage, for it recognizes that technical training in the lower grades is a most important feature. It is here that the difficulty often arises in keeping the scholars interested. To an extent the work of "doing something" is an antidote against ennui or dissatisfaction.

Stuttgart has one of the finest polytechnics in the world, apparently. It cares for about a thousand students and its newer buildings are not only splendidly constructed and imposing from the architectural point of view, but the equipment is of the best and latest. Doctor Bryce spoke of the new physics building, now completed only two years, in which there is every convenient device. One that was particularly striking is the automatic lowering of the window curtains in the largest auditorium when the lantern is to be used. [This feature is, however, not unknown in

American colleges. At Amherst it is certainly fifteen years since Professor Todd instituted such a device, while the new Dartmouth physics laboratory has such a convenience for all the important lecture rooms in the building.] A very convenient further device is the shunting in of a set of electric lamps, one for each desk when the curtains are lowered, the shielded lights giving the students opportunity to make the desired notes with reasonable legibility. There are here supplies of rain water, filtered and ozonized water, since the municipal supply is very hard. It is a part of the work here to teach the students to invent apparatus, and great upper laboratories are devoted to this specialty.

GERMANY'S SPLENDID INSTITUTIONS

At Carlsruhe there is a fine polytechnic and another at Darmstadt. Here Doctor Bryce turned aside for a little while in pursuit of another of his specialities, forestry. There is in the midst of the Hartz Mountains at Löhr on the Main, a people's school of novel and interesting pattern. The great forestry courses of the English universities are very high and the men that are graduated go to the more important positions. There is demand for men of less importance, but such students might be out of place in a classical institution of collegiate rank. So at Löhr Professor Andros has established a school for lads who may become under-foresters. The kind of work interests the Commission exceedingly and it needs no great prophet to predict that one of the important advances in Canadian education will be the fostering of this kind of people's technical school, in which the product will not be managers and superintendents, but intelligent, skilled foremen and workers.

One of the items of information that is of much consequence in the work of forestry is the fact that oak trees in the forests adjacent to Löhr are worth five hundred dollars a tree. It is true that they are four hundred years old and have been cultivated for tall, true trunks, but it means a dollar a year increase in wealth to the owner, and in continuous forestry work yields important financial returns to the holder of the property, who lays the foundation for the prosperity of his descendants. The method of cultivating consists in surrounding the young oak with beeches, which race with it for the upper sunlight, by which means tall trees result.

There is here adopted the principle of leaving the leaves on the ground so as to return the most possible of what has been withdrawn by the tree, and to keep these in place windbreaks of rapidly growing trees are planted.

The Commission is thoroughly delighted with Heidelberg. The old town with its venerable schloss and its celebrated university has modified the courses so that there are numerous science departments scattered about the city. They have been located in a hit or miss fashion, but each one has grown into an important institution on the spot where it was started. Here an object of great interest to Doctor Bryce, who is a skilled anthropologist, was the single specimen on which rests the identification of *Homo Heidelbergensis*, a relic that places man even farther back than does the skull of the Neanderthal man.

Frankfort has the finest palm garden and botanical garden in all Europe, while at Bonn the university has absolutely adapted itself to modern conditions. The technical school itself is a mile across the city from the university at Bonn-Popplesdorf, and seven miles out in the country the agricultural adjunct has an excellent farm.

Utrecht, Amsterdam, The Hague, Leiden, Rotterdam and Delft were visited in Holland, Brussels in Belgium. At Delft there is the all-Holland Polytechnic, a national affair, which has, like the Massachusetts Institute of Technology, made a specialty of naval architecture and training.

Coming again to England, Sheffield, Bristol and Cardiff were in the itinerary, after which the party crossed to Ireland. At Dublin, Trinity College is classical, and there is a fine new Roman Catholic university. There is also the Royal School of Science, truly a magnificent institution, which stands beside that of Glasgow at the head of British technical schools. It has a new building and splendid equipment. A run through Scotland by a small party to Dundee and Aberdeen completed the European portion of the investigation.

The original plan of the Commission was to gain a knowledge of Canadian conditions first, then to study institutions in the older countries and for the final work to review the institutions of the eastern United States, which are more nearly like the home ones. It is for that reason that the visit to Boston comes at the

end of nearly two years' research. This, however, makes the company the more critical. That is why the opinion, "We think no school in the world is ahead of the Massachusetts Institute of Technology," is one that Bostonians and graduates of the Institute may well feel proud of. "Some have better buildings, but no other one seems to have teachers so well adapted to the work."

HIGH PRAISE FOR M. I. T.

"It astonishes us," said one of them, "to find so marvelous an equipment in such plain, factory-like buildings." Of course the gentlemen understand that the new Technology-beside-the-Charles will be housed in structures commensurate with the magnificent architectural opportunities that the Basin will afford. The department of architecture, which Professor Chandler is just leaving, was highly praised by these specialists, who are reasonably fresh from the Beaux Arts at Paris. They seemed to think it more individual than any other architectural course in the world. "Unique and complete," was the encomium bestowed on it, with the additional note that no other institution begins so early with its students. The engineering laboratories, especially the mechanical and electrical, were much admired, while the "shops" on Garrison Street held the company for a long time. Here the instructor, Mr. R. H. Smith, discussed at length the principles of such work and found the visitors heartily in accord with his ideas.

The visitors were greatly impressed with the chemical research laboratories, which have not their counterpart in any other similar institution in the world, and were particularly delighted with President Maclaurin. "He gave us in a short half-hour," said one of the gentlemen, "the most admirable epitome of the evolution of the Institute, of the growth of the school from the foundations established by Professor Rogers. It is marvelous that one, a comparative stranger to the country, should have put himself so quickly in accord with the spirit of the country and have gained so easily the traditions of his splendid Institute."

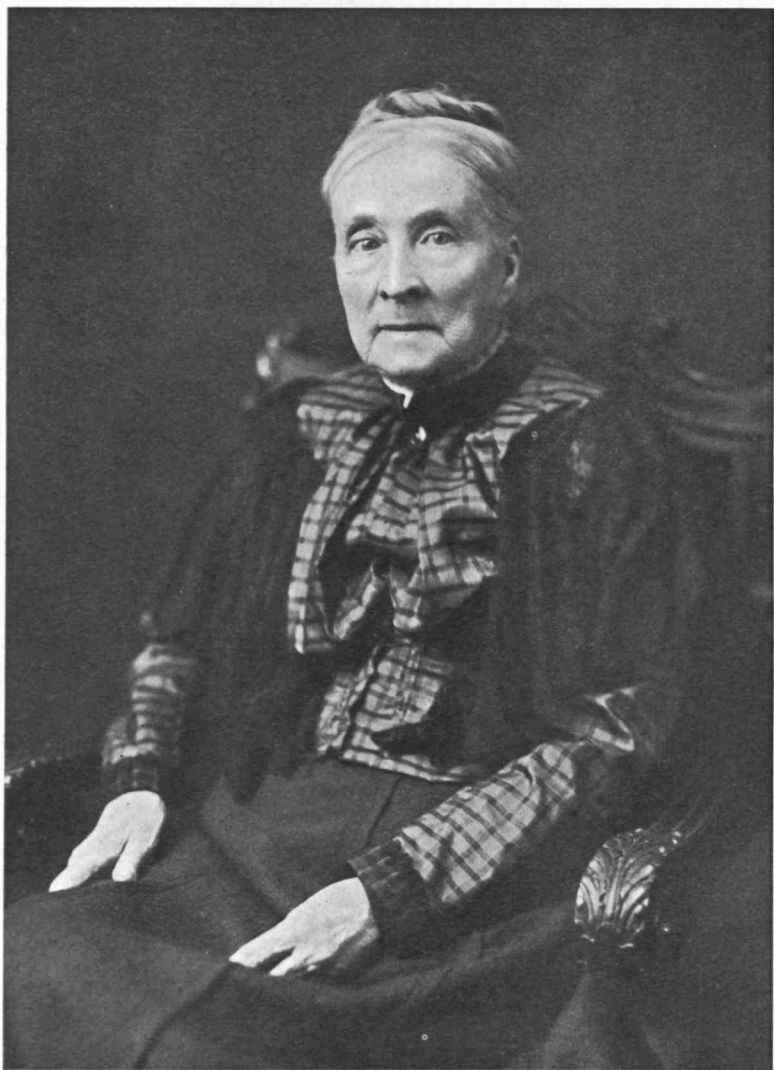
Boston will be a centre of operations among the Massachusetts schools, Worcester, Cambridge and other places, for a few days; some time will be devoted to New York and Brooklyn, with incursions into New Jersey; Philadelphia will be visited and the party

will stay in Washington to gain a knowledge of the interest of the Government in the higher education, and after a peep at Pittsburgh, and a stop in Cleveland there will be finished the most important and thorough investigation into the technical schools of the world that has ever been undertaken.

Result of Alumni Election

Never before have members of the Alumni Association shown so much interest in the choosing of Corporation term members as was evinced in the recent election. The number of ballots cast was nearly fifteen per cent. greater than last year and previous to the opening of the polls, a strong canvass was made in Chicago and New York; each of these cities having representatives among the nominees. As is almost invariably the case, the courtesy of votes, where there was no preference, was given to the older men, the two men of more recent classes on the list polling fewer votes than the men back of 1890. Among these latter candidates, however, the voting was extremely close as all of them were very popular. Indeed, it became necessary for the election officials to canvass the votes four times in order to absolutely verify the count.

The candidates who were elected as term members on the Corporation were Eben S. Stevens, '68, Arthur D. Little, '85, and Louis A. Ferguson, '88. The new officers of the Alumni Association are James W. Rollins, '78, president; Leonard Metcalf, '92, vice-president; Walter Humphreys, '97, secretary-treasurer; George B. Glidden, '93, and Lawrence Allen, '07, members of the executive committee for two years; Charles F. Lawton, '77, John L. Shortall, '87, Spaulding Bartlett, '90, E. Laurence Hurd, '95, and Ingersoll Bowditch, '00, members-at-large on the Alumni Council for two years. The class representatives elected this year were: '68, Robert H. Richards; '73, Samuel E. Tinkham; '78, Charles M. Baker; '83, Horace B. Gale; '88, Arthur T. Bradlee; '93, Frederic H. Fay; '98, Seth K. Humphrey; '03, Myron H. Clark; '08, Herbert T. Gerrish; '11, Orville B. Denison. All the above are elected for five years except the representative of the class of 1911 who will serve for three years, when the classes whose years end in 1 and 6 will have their elections.



MRS. MARGARET E. STINSON

RETIREMENT OF MRS. STINSON

A word in appreciation of her forty-six years of continuous efficient service

It is seldom that one is able to look back upon forty-six years of continuous, uniformly efficient service, almost without interruption on account of illness. It is still more rare that one is able to form scores of new and permanent friendships yearly for so long a period, and to retire from activity with the consciousness of being surrounded by the affectionate regard of these friends and associates. Such, however, is the well-earned privilege of Mrs. Margaret E. Stinson, who relinquished her care of the supply room in the laboratory of inorganic chemistry at the close of the last school year.

Mrs. Stinson began her service in February, 1865, while the Institute was still located in its temporary quarters on Summer Street. She then had charge of the exceedingly limited stock of supplies, and of the bookkeeping for such laboratories as then existed. With the transfer of the Institute to the Rogers Building her responsibilities began to increase somewhat rapidly and for many years included a large measure of supervision of the stock of chemicals, and especially of apparatus, and their maintenance, as well as a portion of the care of the laboratories themselves. On the erection of the Walker Building, Mrs. Stinson's quarters were again changed, this time from the basement of the Rogers Building to the top floor of the then "New Building," and for a number of years she continued to dispense the apparatus for all of the chemical laboratories, having been relieved of the bookkeeping connected with the purchasing of supplies, although still, through her advice, an important factor in this connection. With the growth in the number of students and the equipment of new laboratories, it became necessary, in order to avoid congestion and delay, to open a new supply room on a lower floor and to lessen the pressure upon Mrs. Stinson's time and energies. This permitted her to devote

herself entirely to the interests of the first-year students, and her enthusiasm in this work has never flagged for a moment. She relinquishes it now only at the earnest personal solicitation of her friends, who feel that the demands made upon her physical endurance were necessarily greater than should be permitted.

Such, in bare outline, has been the nature of Mrs. Stinson's official service during a period approaching a half-century, but it leaves almost untouched the most essential elements in her relations to the Institute; namely, great enthusiasm for its aims and methods, unswerving loyalty to all who participated seriously in its work, whether instructor or student, and much personal sacrifice in its behalf, especially in emergencies or times of unusual pressure.

Mrs. Stinson was born in Jamaica Plain in 1833. She attended the Hawes School at South Boston, and later a finishing school. She was married at the age of eighteen to Mr. Jackson L. Stinson, of Boston, who died some two years before Mrs. Stinson began her duties at the Institute, leaving her with the care of four children, two sons and two daughters. Mrs. Stinson makes her home with her daughters, one of whom is widowed, and two grandchildren, at 41 Whiting Street, Roxbury.* Neither of her sons is now living.

Notwithstanding her serious family cares when she came to the Institute, Mrs. Stinson threw herself heartily into her work and won the respect and regard of all who came in contact with her. Her reminiscences of the early days, with their struggles, and their successes attained in the face of much discouragement and despite inadequate equipment, are exceedingly interesting and it is hoped that she may be persuaded to record some of these in permanent form. The earliest of these associations were with Professors Charles W. Eliot and Frank H. Storer; later with Professor R. H. Richards, temporarily as professor of chemistry, then through an honorable line, including Professors Crafts, Ordway, Wing, Nichols, Norton and Drown, to her present associates in the department of chemistry. The friendship between Mrs. Richards and Mrs. Stinson was of the warmest, and Mrs. Rogers also constantly gave evidence of her high personal regard. The recent deaths of these long-time friends caused an unwonted tinge of sadness in Mrs.

*Mrs. Stinson has from time to time received letters from former students which have given her a great deal of pleasure, and I am sure that such evidences of remembrance would be doubly appreciated now.



MRS. STINSON AS SHE APPEARED IN THE EIGHTIES

Stinson's thoughts and conversation. Professor Crafts has happily expressed the general sentiment of those who have been long associated with Mrs. Stinson: "Like every one else, I have a lively remembrance of her kindly ways, of her energy and efficiency, and her evident enthusiasm, which contributed something to the Tech spirit among the students and was, in that sense, really an educational influence."

For many years, Mrs. Stinson met all of the freshmen and all students in the upper years taking chemical subjects. The friendships formed in the days of small numbers were particularly warm and no feature of the Reunions has apparently given greater pleasure to the older graduates and students than a meeting with her, which has always been made the more pleasant by her very unusual memory for names and faces, which enabled her to almost instantly extend a really personal greeting. With increasing numbers the intimacy of contact has necessarily lessened, and it has been less universal than formerly, but not the less effective in times of need.

It has been said that the legend, sometimes associated with court-plaster, "I heal all wounds save those of love" might properly apply to Mrs. Stinson in her ministrations, which ranged from the treatment of homesickness to that of serious wounds and burns. Indeed, if the secrets of her confessional were ever disclosed, it is highly probable that even the exception noted in the last words of the legend above would be found to be invalid. The perennial freshman who asked her for a "glowing splinter" to test his oxygen sample, or a "solid glass tube" when he wished a stirring rod, has always received the same charitable consideration, and she has always been singularly quick to detect the unbidden tear which would come to the eye of a lonesome boy at a chance reference to home, and ready to lend the helpful sympathy which the occasion demanded.

It is not to be wondered at if Mrs. Stinson misses her accustomed daily activity among her beloved students, nor is it to be desired that it should be otherwise. We miss the cheer of daily contact with her and no one can ever really fill her place. But it is a pleasure to know that she still retains her health and much of her vigor, and that she has freedom from the physical strain of continuous service and has leisure time to devote to her own interests and to continue the work in others' behalf, which has characterized

her life-long interest in connection with St. James' Parish in Roxbury where she first went with her parents as a child, soon after the Parish was established.

Mrs. Stinson's long and efficient service has been recognized on the part of the Institute by a grant for this year which will, no doubt, be continued. Her many friends also take pleasure in helping to assure comfortable conditions for her. Surely no one ever better earned a respite from active responsibilities than Mrs. Stinson, and few can rest so completely in the assurance of the affectionate regard and the good wishes for many years of happiness on the part of a world-wide host of friends.

H. P. TALBOT, '85.

Army Engineering Positions Open

Major Cole, who is in charge of military instruction at Technology, calls attention to a matter which may be of interest to some alumni.

According to an Act of Congress in the last session, vacancies in the Corps of Engineers of the United States Army remaining after the assignment of a certain desired number of graduates of the Military Academy will be filled each year by competitive examination of graduates of "engineering courses in approved technical schools." This is the first time the Corps of Engineers has ever been opened to any but graduates of the Military Academy. The first examination to fill quite a number of vacancies will be held January 12, 1912. There are so many vacancies that probably only a partial number of them will be filled this year, and the chances will be good for several years without considering new vacancies. Maj. Cole has received from the chief of engineers the papers relating to these examinations and will be pleased to give any information to any one interested.

Hockey Team Wins over Harvard

The Technology and Harvard hockey teams met on the ice at the Boston Arena, December 21, it being the first game for either team this season. The result was a decided victory for Technology with a score of 4 to 1. A large crowd of college men both from Harvard and Technology kept things lively.

EDISON'S OPINION OF TECHNOLOGY

During forty years' experience he has found Technology men better equipped with practical knowledge than any other general class

In a recent newspaper interview, Thomas A. Edison was asked if there was a chance for the young man. In his answer he said some very complimentary things about the Institute of Technology and the *Boston Post* sent a reporter to his laboratory to get his views more fully, in regard to that institution. The article, which appeared December 17, is as follows:

The salvation of America lies in the Massachusetts Institute of Technology.

That is the shortest and the strongest way of summing up the opinion of Thomas Alva Edison in regard to the educational and industrial needs of America, to technical schools in general, and, in particular, to the Boston "Tech." Although he does not put it in just that phrase, that is his conclusion.

More nearly, than any school or college in this country, the great inventor declares, the technical school in this city meets the demands of modern American life, and gives a promise for modern American citizenship.

And what this country needs more than anything else at the present time is more schools that shall be modelled closely upon the Massachusetts Institute of Technology. For the future of America demands technical education for its young citizens, declares Mr. Edison.

Without question, he adds, the best technical school in America is the technical school here.

"If every State in the Union had such a technical school as the Massachusetts Institute of Technology," averred Mr. Edison, "it would be a great thing for this country.

"It would bring our national problems far nearer to solution.

"It would improve our business conditions.

"It would teach us how to grapple with evils of the day in a competent, sane manner.

"There is no question but what the country today needs technically educated men.

"There is no question but that our nearest approach to real, sensible, usable education lies in the technical school.

"There is no question but that the Massachusetts Institute of Technology is the best technical school in the country."

The industries which Mr. Edison's genius has brought into being employ more than 600,000 men—the population of a large city. They are capitalized at about \$7,000,000,000, and their yearly earnings are more than \$1,000,000,000. Furthermore, they have of necessity brought Mr. Edison into close personal touch with the conditions of modern industrial life, the needs of business. Through his own industries he has been compelled to study at close range the entire industrial situation of America. And he has studied, too, the qualities of American citizenship. He has, both as a matter of necessity and because he is interested in it, given much thought to the preparation accorded young men for the demands of modern life, for the standard of modern citizenship.

In conclusion he points to the Boston Tech, and says to the American public:

"Get more schools like that and you'll find your problems easier."

Mr. Edison's advocacy of the Boston Tech as the best school in America is founded upon his personal experience with technical school graduates.

"For forty years I have been employing young men," he said. "I have taken them immediately upon graduation from technical school and set them to work in my mills.

"And I have found that the graduates of Tech have a better, more practical, more usable knowledge, as a class, than the graduates of any other school in the country.

"But the Boston Tech is not perfect," Mr. Edison added, with a smile.

"It is the best thing of its kind in America, and it is most excellent. But there is room for improvement even there. The school ought to be made more and more practical. More attention should be paid to the brutal industrial training needed to turn out skilled industrial men.

"Many years ago I employed several boys who were just out of the Massachusetts Institute of Technology, and set them to work in the draughting room. They understood the theory of the

work perfectly, and made drawings. But when we sent them to the foundry the drawings wouldn't work. There was one trick of the foundry room, one piece of practical work, that those boys had not learned. I told Pritchett about it, and I suppose a change was made in the teaching of that course; for I have never had that trouble with the Tech boys since.

"I don't believe that our ordinary colleges are wrong, or that they do not have their place in our life and education. But I do think that the technical schools have a more important place. And I'll tell you why:

"In the first place, there is no disputing the fact that the ordinary colleges turn out excellently equipped professional men. The usual classical education is of great benefit to the man who wants to be a lawyer, or, for example, who wants to pursue a literary career. But we have too many lawyers in America, too many professional men, too many men who are trying to pursue a literary career.

"And we do not have enough men whose training has been such as to enable them to cope with the actual conditions of life. We do not have enough men who understand, from A to Z, the science of business. Most of all, we have not enough engineers. In industry and in business we need more men with engineer's training.

"We need them as engineers. Simply as engineers and skilled workmen in our various industries, we have not enough technically educated men. We have not enough skilled 'laborers' in industry. We need engineers who thoroughly know engineering, both its theory and its practice.

"We need them—these men with engineers' training—as business men. The man who is to go into the office end of a great industrial concern ought to know all the ins and outs of the business as well as the man who goes into the draughting room. The man in the office, the man who steps by reason of money or inheritance into a high place in the firm, ought to know the details of his industry, so that he will not be fooled by his foremen or managed by his managers. If his business is to succeed for himself and turn out the best possible products for the community, it is well that he should himself have had a technical education, even if it has been found advisable for him to go to Princeton or Harvard to finish up with a classical year or two afterward.

"And we need technically educated men here in America to help

us in the problems of industry and big business. There is no use of our expecting a bunch of lawyers to make laws and hand down decisions with regard to industry. They can't do it. They don't know industry: they don't know business. They are ignorant of the inter-relations of trade and of manufacture. We have no right to expect a group of lawyers to solve our industrial problems and clear away our industrial clouds. It is simply impossible for them to do it. Special training is necessary in order to grapple with industry—special technical training. And that is not the sort of training that these men have had.

“What is more,” continued Mr Edison, emphatically, “we need technically educated men in this country because—I, for one, am firmly convinced—technical education is a good thing for a man's character and his citizenship. We cannot put the value of citizenship altogether on a basis of education, of course; the question of morals enters into that too closely.

“But I feel most strongly that technical training is a sort of training that is good for a man's character, and that enhances his value to the community and State.

“A boy who goes to the Boston Tech has to work. He has to think. And he has to keep on working and thinking all the time or else he will go down. The technical school does raise the standard of character and citizenship—and I am not sure that the ordinary college does. The technical school is altogether a more serious proposition.

“When people are busy of their own accord they are usually found to be good citizens. The Tech graduate is usually found to be busy of his own accord.

“While I am talking about citizenship,” added Mr. Edison, “there is one thing that I want to say:

“That is, that I consider the American locomotive engineer to be the highest type of American citizenship.

“The locomotive engineers are fine men. They hold positions of grave responsibility. They must know their business and know it thoroughly. They do not drink, they do not smoke to excess, they cannot be in any way intemperate. They are appointed to their positions and their salaries solely on a basis of merit, and it is on merit alone that they hold their jobs. Although they are the most powerful and strongly organized union in the country, they seldom strike. They get what they want quietly and without violence.

They are law-abiding. For some reason, which I do not altogether understand, they are almost always the finest type, mentally and physically, of men. Their family life is excellent, and you will almost invariably find that they are well considered in the communities in which they live. I am ready to state quite frankly and without exception that I believe them, as a class, in every way, to be the most stable and the finest American citizens.

"That, however," smiled Mr. Edison, "is a little by the way. To return to the need for technical training. America needs chemists, engineers, all sorts of technically educated men because this is a new country with industries to open up and develop because it is a commerical country with big businesses to manage in the right way. We want our schools and colleges to turn out the men the country needs. I like the Massachusetts Institute of Technology because it is doing that, meeting the needs of America. It isn't perfect, but it does come nearer than anything else we have in America to giving the country what the country needs and giving American young men a really utilitarian education—a usable training.

"And there is such a big demand for those trained men! We haven't nearly enough of them. The other day a man came to me and asked me to suggest two men for \$10,000 positions. I couldn't do it. I wanted a man myself to fill a \$10,000 position, and I couldn't find him. There were plenty of threes," Mr. Edison smiled, "but no tens. And there are places waiting for the men whose education is such as to fit them to earn \$10,000 a year.

"I think that every state in the Union ought to have a school like the Boston Tech.

"It would be a great thing for the country. It would cause an immense improvement in our industrial condition.

"If in our demand for education we should drop most of our Latin and Greek and a good deal even of our higher mathematics, and teach the brutal parts of business instead, it would be a good thing for our boys, for our industries and for our country. Our 'higher' schools ought to teach young men the things that they are going to need, to use, every day.

"Germany is doing that. And Germany is getting the trade of the world. Germany not only has excellent technical schools and plenty of them, but she sends her young men to England and other

us in the problems of industry and big business. There is no use of our expecting a bunch of lawyers to make laws and hand down decisions with regard to industry. They can't do it. They don't know industry; they don't know business. They are ignorant of the inter-relations of trade and of manufacture. We have no right to expect a group of lawyers to solve our industrial problems and clear away our industrial clouds. It is simply impossible for them to do it. Special training is necessary in order to grapple with industry—special technical training. And that is not the sort of training that these men have had.

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"But I feel most strongly that technical training is a sort of training that is good for a man's character, and that enhances his value to the community and State.

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"But I feel most strongly that technical training is a sort of training that is good for a man's character, and that enhances his value to the community and State.

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places and sets them to work in shops, coming up from the bottom to learn the trade.

"There is of course a movement throughout America in favor of more technical training. But the movement is going too slowly. The institutions for teaching Latin are growing faster than the institutions for teaching the problems of life. The institutions to teach boys what they ought to know are not growing fast enough.

"Then, too, we need regular business training. We need colleges whose purpose is to teach business.

"Business is badly managed, in this country as we all know. And the education we are giving our boys is not such as to train them to manage it better.

"A technical education means after all, just one thing," continued Mr. Edison, gravely. "A technical education means that a man knows his environment. The man who has been through Boston Tech, for instance, knows his environment. He understands the conditions under which his ordinary life must be lived. He understands the relations of force to matter. He has learned much of relations in the conditions of life, and he can cope with those conditions. A good technical school turns a man out ready to meet life, while the ordinary college sets him adrift in a world of which he knows nothing."

In advocating the extension of technical training and the establishment of more schools like the Boston Tech, Mr. Edison lays the strongest possible emphasis upon the needs of education that will teach men how to react upon and through their environment—in grappling with the problems of "big business."

Mr. Edison has small respect for the Sherman Anti-Trust Law.

"The Sherman law is in itself 'in restraint of trade,' " he declared. "No better definition could be found of that vague phrase than just to point to the factories the Sherman law has closed, and then to the Sherman law itself and say 'Here it is.'"

"Why, those men who sit around a green baize table and theorize about the control of business can't solve these problems of ours. Business problems can be solved only by business men.

"The problems of American industry can be solved only by men who know American industry, by men who have learned the technique of industry.

"I do not say that a group of technically educated men could get to work now and get the country out of its muddle of bad busi-

ness management. I doubt if any one could do that. The business of this country is mismanaged and the Sherman law is just about as bad as anything could be. But I do say that technical training would help. I do say that the control of business must be placed first in the hands of men who understand industry. They can think up a plan—I am trying hard, as you know, to work one out myself—and then the lawyers can whip it into legal shape.

“But one thing is certain. More schools like the Boston Tech would be great for America. If we had more schools like that and gave our boys the sort of training that the boys get in the Massachusetts Institute of Technology—why, we would find our industrial problems nearer to solution.”

Sent Here by the Turkish Government

Shahin A. Ajemian, the first Armenian to be sent to this country by the Turkish government to obtain an education, arrived in Boston recently to enter the Institute where he will take a four years' course in civil engineering. Upon the completion of his course he will return to Turkey and become head of the government's department of civil engineering.

Ajemian's father is a graduate of Amherst Agricultural College and director of agriculture in Turkey. His home is at Harpoot. Although only twenty years old, the son is a graduate of Euphrates College, which is maintained by the American Board of Commissioners of Foreign Missions.

Ajemian has letters from his government to the Turkish ambassador at Washington which he will probably present later.

Talented Hindoo at Tech

Blagat Singh of Punjab, India, the son of one of the most influential families in his native land, recently began his studies at Technology.

He is about thirty years old and is already possessed of a splendid education, having completed courses in several European colleges. He speaks good English and dresses in conventional Anglo-Saxon garb with the exception of a white silk turban. He is taking the course in electrical engineering.

RESIGNATION OF PROF. PETER SCHWAMB

Under his direction the courses in Machine Design and Mill Engineering were developed

It has been my privilege to know Professor Schwamb since his appointment as a member of the instructing staff of the Institute. He was graduated with the class of 1878, and was engaged in active engineering work until requested to return in the fall of 1883 to aid Professor Lanza (who was at that time appointed in charge of the department of mechanical engineering) in reorganizing the courses of study offered in that department. This occurred at the time when the rapid development of the Institute was just beginning, under the guidance of General Walker. During the summer of 1883 the Walker Building was completed, and the shops were moved to Garrison Street. Professor Schwamb was placed in charge of the courses in mechanic arts, and under his direction the new shops were fitted up, and until his retirement these courses have been under his supervision. He has kept constantly in touch with the improvements in machine tools, and to him is due the credit of the development of these courses, and also of the installation of the best methods of shop practice in the conduct of the work.

Professor Schwamb, in addition to his oversight of the "shops," as we used to call them—the "mechanical laboratories," as they have been styled in recent years—was asked to plan and develop the courses in machine design and mill engineering; he was able to obtain many of the machines used in cotton mills, and these were placed in the engineering laboratory. Prior to this time this laboratory was in the most cramped position imaginable, being under the steps and part of the corridor of the Rogers Building; but the opening of the Walker Building and the removal of the chemical laboratories to that building gave us additional space in the basement of the Rogers Building. I recall the interesting instruction which he gave us in the above courses, and



PROFESSOR PETER SCHWAMB

especially his untiring effort to have us understand the intricate mechanism of the cotton machinery; and he did not have the facilities with which to work that I had later in trying to teach other students the same processes. That first year we had no electric lights, but used candles to see the machinery, and instead of the well-lighted engineering building of today, we were in the basement of the Rogers Building, and in the darkest part of it.

In addition to these duties he also gave the instruction in mechanism, and not finding a text-book altogether satisfactory, began writing notes on the elements of mechanism. I recall his telling me of the strenuous work required to have these notes in readiness for the class while carrying on the other duties which fell to him. These notes were so well written that with scarcely any alteration they were used continuously until a few years ago, when Professor Schwamb asked me to co-operate with him in a revision and enlargement of the book, and together we published the book now in use. His work was originally so well done that little change was necessary.

The large amount of work required to successfully inaugurate and carry on these different lines of effort resulted in his having during the first few years, almost no time for vacation, and in 1891 his health became somewhat impaired, which rendered it necessary for him to take a long rest. He was absent about a year, taking a trip around the world. On his return with renewed health he took up his work again, with the exception of that in mechanism, and has continued in charge of the courses in mill engineering, machine design and mechanic arts from that time until his retirement this year.

Professor Haven, who has been associated for twelve years with Professor Schwamb in the instruction in machine design and mill engineering, writes of him as follows:

"It is difficult to estimate the influence of a man like Professor Schwamb upon those about him. The pupils in his classes as well as his associates in work have never failed to catch the inspiration which came from dealing with a teacher of his type. His clear grasp of fundamental principles, his broad practical knowledge of their application and his untiring devotion to work have left an impress, which nothing can efface, upon a great body of former students extending back over a period of nearly thirty years. Better than this, his sterling honesty, his unfailing sincerity and

his vigorous manliness have found a ready response in the moral life of his former pupils. No teacher in the Institute has been more earnestly sought by returning alumni than has Professor Schwamb, and his wise counsel has proved a source of great strength to many a former student."

Every one who has had the privilege of receiving instruction from Professor Schwamb, or who has been associated with him in the Institute work, knows of his faithful and efficient service as a member of the instructing staff; and we regret that he has found it necessary to retire from active participation in this work.

ALLYNE L. MERRILL, '85.

Gift for Naval Research

The President in his report recently presented to the Corporation, spoke feelingly of the death of Doctor Weld, through whose substantial interest much valuable research work in the department of naval architecture has been made possible, and stated that these researches would now have to be abandoned for lack of funds to continue them. The work that has been conducted by Professor Peabody, however, has been of such a character that it has attracted wide interest, and closely following a valuable report setting forth the results of the experiments with the *Froude*, a fund has been presented to the Institute to continue and enlarge experimental work in naval architecture. This gift comes from two prominent New York yachtsmen,—Mr. Arthur Curtis James and Mr. Clinton H. Crane. Mr. James was formerly commodore of the New York Yacht Club and Mr. Crane is well known in yachting circles as a designer of fast boats.

The department will begin a new line of research which will have to do with the designing of tug boats. These craft have never been studied scientifically, and it is believed that important results will follow this investigation. Professor Peabody announces that the construction of a model of a tug boat on the lines of some typical craft of the kind, will begin at once. This model will be built in the Technology shops on Garrison Street and will be designed and worked out entirely by the students. It will be tested in the Charles River Basin next summer in the same manner as the *Froude* has been.

THE TREASURER'S REPORT

Nominal Deficit this year less than \$5,000—Many gifts were received during fiscal year

The report of the treasurer of the Institute which was presented to the Corporation at its last meeting, is a very interesting document. It will be difficult for readers of the REVIEW to compare this report with that of previous years, as the fiscal year now terminates June 30, instead of September 30, as heretofore. The report, therefore, shows in detail the transactions for nine months only, from October 1, 1910, to July 1, 1911, but for purposes of comparison, the gross income and outgo for July, August and September, 1911, are given in schedule A shown below.

It is to be remembered that the provision for \$100,000 a year from the State does not begin until next year.

The following gifts and legacies amounting to \$66,653.68 have been received during the nine months, and call for the sincere thanks of the Institute.

Estate William Litchfield for Scholarships	\$5,000.00
Guy Lowell for Traveling Scholarship in Architecture	500.00
Estate Thomas Gaffield	500.00
Mrs. William B. Rogers, for Salaries	500.00
Mrs. William B. Rogers for Periodicals	225.00
Charles J. Paine for Salaries	100.00
Charles G. Weld for Naval Architecture Department	2,500.00
Mrs. W. Scott Fitz for Seismological Research Fund	250.00
Dr. A. A. Noyes for Physico-Chemical Research Department	3,000.00
Estate Susan E. Dorr	1,500.00
Professor F. J. Moore for Salaries	125.00
Saturday Club for Library	600.00
"A friend of the Institute" for Sanitary Research Work	6,000.00
Estate J. Raynor Edmands	10,000.00
Estate Henry L. Pierce	100.00
Arthur A. Carey	500.00
Charles W. Eaton for buildings for Civil Engineering Summer School Camp	10,000.00
M. I. T. Alumni Fund	22,753.68
Herbert E. Fales	500.00
H. J. Keith for Egg Investigation (\$5,000 in all to be furnished)	1,000.00
Edison Electric Illuminating Company for Electric Vehicle Research (\$3,000 in all to be furnished)	1,000.00

In addition to the above, there should be recorded the generous bequests of Mrs. Emma B. Rogers and Francis B. Greene, Esq.,

received after the close of the fiscal year. The details of these bequests will be included in next year's report.

The payments received from the Alumni Fund for this year amounting to \$22,753.68 have made possible certain changes and improvements in equipment that could not otherwise have been made.

The Walker Memorial Fund, with accrued interest, now amounts to \$127,998.91.

Schedule A

FINANCIAL RESULT OF THE NINE MONTHS ENDING JUNE 30, 1911

Total outgo, per Schedule C-1	\$493,463.36
Total income, less gifts, per Schedule B-1	484,199.52
Excess of outgo over income for 9 months	\$9,263.84
Refunds on salaries paid last year	118.60
	<u>\$9,145.24</u>
Income, etc., added to Funds (net)	\$2,312.01
Students' fees charged off as uncollectable	30.00
Roentgen Ray Fund, expense 1909-10 omitted	172.69
Appropriated for President's Fund	500.00
Physico-Chemical Research Fund (bal. of appropriation)	16.88
Research Laboratory of Applied Chemistry Fund, receipts of earlier years	1,000.00
Whitney Fund income omitted last year	200.83
	<u>4,232.41</u>
Total excess of outgo over income 9 months.	\$13,377.65
Additional income for July, August and September less gifts (To be reported in detail next year)	58,586.71
Additional outgo for July, August and September	122,107.85
Excess of outgo over income 3 months	\$63,521.14
Excess of outgo over income 9 months	13,377.65
Excess of outgo over income for 12 months	\$76,898.79
Gifts, per Schedule B-1	\$37,003.68
Received from Rogers estate (unrestricted)	35,000.00
	<u>72,003.68</u>
Net decrease of surplus	<u>\$4,895.11</u>
Gifts received in addition to the above for special purposes:	
Charles W. Eaton, for buildings for Civil Engineering Summer School	\$10,000.00
William Litchfield, for scholarships	5,000.00

Among the ten associate editors of the American Engineer's Pocket Book, published by John Wiley & Son, are Charles B. Breed, '97, Allen Hazen, '88 and Frank P. McKibben, '94.

SAFEGUARDING STUDENT CREDIT

Undergraduate Finance Commission adopts a system of uniform accounting for all activities

The REVIEW has already mentioned the establishment by the Institute Committee, the undergraduate senate, of a finance commission which consists of the president of the Institute Committee, three alumni advisers and the treasurers of the various student organizations. During the present term the influence of this commission has been greatly enlarged and practically all the student activities are heartily coöperating with it. At the last meeting it was announced that Myron E. Pierce, '96, had consented to act as the legal adviser of the committee. All of the activities showed a better condition since the first meeting of the year and in some quarters previous discussions had resulted in great benefit.

The report of the committee on uniform accounting was presented at this meeting. This committee has been investigating the methods of accounting, banks and checking, approving of bills, expense account and volume of business of the most important of the following activities: eight professional societies, four classes, The Tech, Technique, Junior Prom, Portfolio, Musical Clubs, Institute Committee, Tech Show, M. I. T. A. A. and T. C. A. They reported that the accounting of most of these societies is without any good system, some of the accounts being merely memoranda and temporary accounts. They accordingly recommended that all accounts should be kept in one book, to be used until filled, being handed from one set of officers to the incoming men; that separate entries be made for such permanent items as printing, dinners and expense accounts; and that a standard form of expense accounts be adopted. To simplify the collection of dues, it was recommended that the treasurers of the various activities keep a card index record of all names.

All activities and organizations having an income of fifty dollars a year are to establish a banking account at either the Shawmut National Bank, the Old Colony Trust Company, or the State

Street Trust Company, and are to pay all expenditures by check. All these checks are to be signed by the business manager or treasurer, and those of all but the professional societies and the classes are to be countersigned by a second officer of the activity. Bills must be approved and placed on file by the proper official, who will also see that expense accounts are approved before acceptance.

An amendment was made that any departure from these recommendations should be presented in writing to the Finance Committee for approval.

H. L. Coburn, '98, offered to donate the necessary books, and they will be distributed among the treasurers of the important activities.

Beginning with the new year, meetings will be held on the second Thursday of each month.

New Members of the Alumni Association

The following former students were elected members of the Alumni Association on the date indicated:

December 22, 1911: A. B. de Araujo, '11; Stacy C. Bates, '11; Henry P. Benson, '86, S.M.A.; Robert Huse Brown, '01; Edward L. Coffin, '86; J. Foster Cole, '10; Arthur Harrison Curtis, '10; Ada E. Daniels, '96; Luther Davis, '10; Norman Speery de Forest, '11; Lyman Edward Dodge, '01; Francis F. Emery, '81; Joseph Lazarus Geismar, '11; Edwin Farnham Greene, '03; Charles E. Grush, '86, S.M.A.; Edmund Hayes, '73; Charles Hubbard Her-
rick, '86, S.M.A.; Charles E. Holmes, '86, S.M.A.; George C. Kaufman, '89; John Edward Kelley, '10; George Edward McKernan, '09; Robert Harrison Mather, '11; Hiram Percy Maxim, '86, S.M.A.; Francis Aldrich Moore, '11; Clara M. Pike, '83; Arthur Clifton Pillsbury, '11; James Herbert Richardson, '99; Charles M. Shove, '74; Joseph Baird Stewart, Jr., '08; Harry Friedlander Stix, '04; Samuel B. Stuart, Jr., '86, S.M.A.; Frederick W. Tyler, '86, S.M.A.; Parker R. Whitney, '07; William O. Whitney, '11; Norman S. Wooldridge, '86, S.M.A.; Frederick E. Harnden, '90.

ALUMNI CLUBS FLOURISHING

Numerous and varied activities of New York Club—Annual Banquet January 13—Los Angeles Alumni visit Dr. Hale—Strong interest in Buffalo—News from Rochester and Minneapolis

THE TECHNOLOGY CLUB OF NEW YORK.—November has been a busy month at 17 Gramercy Park with class dinners of '94, '06, '10 and '11, a smoke talk by G. C. Whipple, '89, and preparations for the annual dinner.

On the last Saturday in October, a luncheon was given to J. Waldo Smith, '87, as a testimonial of the pride of the New York alumni in his distinguished services as chief engineer of the Board of Water Supply. There was a large attendance, the older classes being particularly well represented. G. W. Kittredge, '77, acted as toastmaster.

On November 18, G. C. Whipple, '89, gave a loose-leaf talk on sanitation illustrated with a large number of lantern slides. He discussed the spread of disease by water, milk and shell fish, and the methods by which preventable disease is being controlled by the engineer and the sanitarian. Mr. Rudolph Hering, the leader among the elder sanitary engineers of the country, was present and took part in the discussion.

G. F. Shaffer, '10, has been appointed to act with D. W. Edgerly, '98, on the house committee. A publicity committee has been appointed consisting of C.-E. A. Winslow, '98, L. D. Gardner, '98, and O. Iasigi, '08.

President King, '94, has presented to the club a set of the latest issue of the Encyclopedia Britannica, printed on India paper, bound in full morocco with special cover letterings and in its own book case.

A bridge tournament, under the direction of J. C. Duff, '86, is planned for the evenings of December 13 and 20 and January 10, 17 and 24 with individual prizes for each evening in addition to the governor's prize for the highest score. A pool tournament

will be held on the evening of December 26 and January 2, 9 and 16, G. U. G. Holman, '89, chairman of the committee. A governor's prize, a player's prize and a consolation prize are offered.

The December smoker will be held on Friday, December 15, and the speaker will be T. Howard Barnes, '81, who will speak on *Glimpses of Guatemala: Its Civilization, Ancient and Present*.

The date for the annual dinner has been changed from January 20 to January 13. G. W. Kittredge, '77, will be toastmaster and President Maclaurin has promised to be present. Other speakers of international reputation will make addresses on certain problems of modern science and industry. V. R. Lansingh, '98, who is chairman of the dinner committee, thinks eastern alumni dinners are not like those they have in Chicago, and this time he is going to show us.—*C.-E. A. Winslow, '98, Chairman, Publicity Committee, 17 Gramercy Park, N. Y.*

NOTE—We have received word just as the REVIEW is going to press that Thomas A. Edison will be one of the speakers at the annual banquet of the club, January 13th.

TECHNOLOGY CLUB OF SOUTHERN CALIFORNIA.—The annual meeting and outing of the Technology Club of Southern California was held at the Mt. Wilson Hotel, on December 2 and 3. This hotel is at the summit of Mt. Wilson, elevation 5,886 feet, where is also located the Carnegie Solar Observatory, of which Dr. George E. Hale, '90, is director. Different from any of our previous trips, this one was not a "stag" affair. So successful was this feature, in that the "fair sex" braved the dangers and hardships of the journey and demonstrated their true "sportsmanship," it was unanimously voted that their names be spread on our rolls as honorary members—not co-eds.

After the reports of the retiring officers, the following were elected for the ensuing year:—Edward L. Mayberry, '06, president; Desaix B. Myers, '08, vice-president; L. A. Parker, '06, secretary-treasurer. Upon completing our business, we adjourned to the "large dome" where, through the courtesy of Doctor Hale and under the direction of Professor Barnard of Yerkes Observatory, who is out here for a short time doing special work, we were given the opportunity of observing Saturn through the 60-inch reflecting telescope,—the largest instrument of its kind in the world. We might add, however, that this instrument is not long to have this

honor, as they have been at work for some time upon a 100-inch reflector of the same type, which is to be located a short distance from the present 60-inch one. Returning to the hotel, the balance of the evening was spent in dancing and singing college songs. Most of our party were up bright and early the following morning to observe the sun as it rose over the eastern mountains and gave a clear view of the valley below us.

After breakfast, we were extended the courtesies of the observatory through Doctor Barnard and two of his able assistants, who showed and explained to us the working of the 60- and 100-foot tower telescopes, as well as the other instruments located on the mountain. Our party broke up upon conclusion of the visit through the observatory and in groups started on their way back to Los Angeles, some returning by the regular route and others by different trails, thus ending one of the most delightful excursions ever taken by the club.

The club has recently issued a directory of all Tech men residing in southern California, a publication which is to be issued annually and which has already filled a long-felt want among our members. Among other activities of the club are our luncheons which take place on the first Wednesday of each month at the University, to which all Tech men are heartily welcome and expected to attend if in our city.—*L. A. Parker, '06, Secretary, 689-691 Pacific Electric Building, Los Angeles, Cal.*

THE TECHNOLOGY CLUB OF BUFFALO.—The Technology Club of Buffalo is still enthusiastic and in a very flourishing condition. We have now sixty-two members on the list and are canvassing for more.

Our program for the year has not been definitely settled upon but is in part as follows: December 22, a Christmas Festival and a bowling match will be held at the Buffalo Club. The nomination of officers will also take place at this meeting. In January we expect President Maclaurin will be with us on his way to the meeting of the northwestern alumni. Just as soon as we hear from Mr. Humphreys and can tell how long a time the President will be able to stay in Buffalo, we shall be able to formulate plans for his entertainment. We shall at least have a dinner, and some of our prominent citizens as guests for the evening. In February

a vaudeville entertainment by our own talent will be the stunt, every man to dance, tell a story or sing a song.

An enthusiastic meeting of the executive and entertainment committees was held on the evening of December 6, when the question came up of inviting some member of the alumni to address us at our meetings to keep alive the fraternal fires and the reverential regard for our alma mater. We are delighted with the location of the building site and are glad that the Institute is to remain near old Boston. Among the club items we would note, the death of Mrs. Shed in September, wife of N. W. Shed, class of '81. The marriage of Mr. Fletcher H. Burke, '05, to Miss Anna V. Gardiner of Washington, D. C., took place in Washington, November 16, 1911. Our president, W. H. Watkins, '95, was laid up for a few days in November which accounts for the Buffalo Club not having a meeting in November.—*Richard F. Morgan, '96, Secretary, 139 West Oakwood Place, Buffalo, N. Y.*

TECHNOLOGY CLUB OF ROCHESTER—The annual meeting of the Technology Club of Rochester was held on Monday evening, October 30, at the Hotel Seneca. The following members were present: W. E. Hoyt, '68, A. S. Crocker, '97, J. H. Hasti, '96, F. A. Cole, '91, H. H. Tozier, '96, F. D. Rich, '03, W. G. Bent, '05, D. E. Russ, '07, O. K. Foote, '80, A. F. Sulzer, '01, George Fuller, '11, B. C. Hopeman, '00, M. W. Hogle, '01, G. W. Everett, '09, J. C. Dryer, '99, C. C. Culver, '96, J. F. Ancona, '03, S. C. Allen, '06, O. R. Adams, '06.

A very acceptable dinner was enjoyed by all present; the dinner arrangements were in the hands of F. A. Cole, who fully lived up to his reputation in this line. Following dinner, the annual business meeting was held. The following names were proposed for membership and all were elected: Messrs. Adams, Hogle, Rich, Everett and Turnbull. Election of officers followed, all of the present officers being unanimously elected. Mr. F. A. Cole was not eligible for reelection on the executive committee. Mr. M. H. Eisenhart, '07, was elected in his place.

The secretary-treasurer read a report of the club's finances. An animated discussion followed in reference to various schemes for bringing the Institute more forcibly before prospective students, Messrs. Rich, Allen, Haste, Burt, Hoyt and the secretary making remarks. This led to a motion being carried to have the

executive committee consider and act upon the question, the secretary being directed to write Doctor Maclaurin and Mr. Litchfield, '85, for suggestions and advice. The remainder of the evening was spent in singing, Mr. Culver presiding at the piano.

Mr. Moses Lyman, Jr., '90, has moved to Springfield, Mass., and Mr. M. J. Turnbull to Philadelphia. All members will regret their loss from the club. A booklet containing the constitution and a list of members has been printed and has been sent to all members and interested persons.—*J. F. Ancona, '03, Secretary-Treasurer, 190 Birr Street, Rochester, N. Y.*

TECHNOLOGY CLUB OF MINNESOTA.—The Minnesota Club held its second dinner of the year on Thursday evening, December 7, at the Ryan Hotel, St. Paul.

A car was chartered to take care of the Minneapolis delegation and on landing in the rival city they were in fit condition to enjoy the excellent meal provided by the St. Paul men. Every one present was in a happy mood,—business cares were thrown aside and an evening of enjoyment was indulged.

The speakers of the evening were: A. W. Friend, '02, who described the operations of the Northwestern Telephone Company in this district. Leo Goodkind, '92, of Mannheimer Brothers Company, told us of the troubles of a merchandising establishment catering to feminine trade.

A business meeting was held at the close of the evening with the following results:—

The club will petition for representation on the Alumni Council, and chose I. W. Litchfield, '85, to represent it, both matters to be placed before the next meeting of the executive committee of the Council.

A committee of four was appointed by the president to arrange for future meetings and dinners of the club. This committee consists of two Minneapolis men, one St. Paul man, and one man from Duluth. This committee was also instructed to draw up a set of by-laws as well as a constitution and report on same at the next meeting.

The club then unanimously voted to instruct the secretary to invite Doctor Maclaurin to be the guest of honor at the annual banquet to be held during the latter part of the month of Jan-

uary, the definite date being left to the discretion of Doctor MacLaurin.

The club wishes to extend its sincere welcome to all Tech men in this section of the country or to men passing through the Twin Cities to join us at any of our dinners and especially this one.—*Clifford C. Hield, '10, Secretary, 1722 Fremont Avenue South, Minneapolis, Minn.*

WASHINGTON SOCIETY OF THE M. I. T.—The banquet of the Washington Society will be held January 22, when President MacLaurin of the Institute will be the guest of honor. At a meeting of the association held December 4, the following officers were elected to serve until December 1, 1912: president, Walter J. Gill, '04; vice-president, Francois E. Matthes, '95; secretary, Clifton N. Draper, '08; treasurer, Frederick E. Fowle, '94; the above officers and Frederick W. Swanton, '90, for the executive committee. I. W. Litchfield, '85, was appointed representative on the Alumni Council. A notice is given that the weekly luncheons in Washington have been discontinued because most of the down-town members have only a limited time for luncheon which has been found insufficient to make the weekly luncheons a success. The address of the new secretary of the association, Mr. Clifton N. Draper, is 1860 Columbia Road, Washington, D. C.—*Delos G. Haynes, '09, Secretary, United States Patent Office, Washington, D. C.*

TECHNOLOGY ASSOCIATION OF MANCHESTER.—The annual dinner of the association will be held the latter part of January. The program is not yet complete, but we plan to have a big time and hope every one that can possibly come to Manchester will make a special effort to do so. We feel that our list of M. I. T. students in this vicinity is not as complete as it should be and we request that any who have not had some communication in regard to this organization will send their names and addresses to the secretary.—*G. S. Gould, '07, Secretary, 102 Webster Street, Manchester, N. H.*

TECHNOLOGY CLUB OF PHILADELPHIA.—The Technology Club of Philadelphia held its second smoker of the season at the Southern Club, December 14. Mr. S. M. Vauclain, general superintendent of the Baldwin Locomotive Works, who was a guest of the club addressed the members on some recent developments of locomotive building.—*W. H. Blakeman, '05, Secretary, 1618 Green Street, Philadelphia, Pa.*

TECH MEN IN THE PUBLIC EYE

ARTHUR D. LITTLE, '85, who has just been recently elected one of the three new term members of the Corporation of the Massachusetts Institute of Technology by the alumni, was further honored by being made president of the American Chemical Society at the recent meeting of the American Association for the Advancement of Science in Washington. After leaving the Institute, Mr. Little became chemist and superintendent of the Richmond Paper Company, Providence, R. I., the first mill to operate the sulphite process in the United States. He started sulphite mills in Wisconsin and North Carolina in 1885-86. In 1886 he came to Boston and engaged in general chemical work as a member of the firm of Griffin & Little, continuing in general practice up to the present time, the firm being Little & Walker, 1886-93; A. D. Little, 1893-1910; Arthur D. Little, Inc., since 1910. Mr. Little has built up a practice extending beyond the borders of the United States and he has the distinction of being at the head of the largest and most complete organization in the world devoted to general chemical and engineering work in the commercial field. Mr. Little is president of the Chemical Products Company, and director of the Fort Hill Chemical Company and Standard Alcohol Company.

He is the author (with R. B. Griffin) of the "Chemistry of Paper Making." He is a director American Chemical Society; past chairman Division of Industrial Chemists and Chemical Engineers; member Executive Committee Eighth International Congress of Applied Chemistry; president Section of Cellulose, Starch, Paper. Member American Gas Institute; Society of Chemical Industry; American Institute Chemical Engineers, etc. Fellow American Association for Advancement of Science.

Mr. Little was largely instrumental in starting the TECHNOLOGY REVIEW, and it was he who conceived and planned the Congress of Technology which is already exerting an important influence in the development of the new Technology.

H. J. HORN, '88, formerly assistant to the president of the New York, New Haven & Hartford Railroad, became vice-president in charge of the operating department January 1.

FRANK W. HODGDON, '76, has been appointed one of the four members of an engineering commission which is to make a survey of the region along the boundary between Costa Rica and Panama in connection with the arbitration of a long standing boundary dispute between these two countries. Mr. Hodgdon has been for many years chief engineer of the Harbor and Land Commission of Massachusetts, and in that position has directed extensive surveys connected with the improvement of harbors and waterways, as well as the town boundary surveys of Massachusetts. The boundary between Costa Rica and Panama has been in dispute for many years. The question was arbitrated by the President of France in 1900, and his decision fixed definitely the part of the boundary which lies on the Pacific slope. The uncertainty is now limited to the correct interpretation of the award of 1900 on the Atlantic slope, an uncertainty which must be removed before it is possible to locate the boundary definitely upon the ground. It is now expected that the commission and the survey party will leave for Central America in January and make the survey during the dry season of 1912.

R. WINTHROP PRATT, '98, who has been chief engineer of the Ohio State Board of Health for eight years, recently resigned to become special sanitary engineer of Cleveland, Ohio. He will make an investigation and report relative to the disposal of sewage in that city. Mr. Pratt became connected with the Massachusetts State Board of Health soon after graduation. During 1909 and 1910 he was sanitary engineer in Cuba.

CADWALLADER WASHBURN, '93, the artist, is the subject of a recent sketch in *The Bellman*. Mr. Washburn, although deaf and dumb, has been an intrepid traveler as well as an explorer. He has studied his art in Paris, Madrid, Italy, Holland, was in Japan at the time of the war with Russia and in Mexico during the revolution. He recently penetrated into the interior of Morocco with but a single companion, and established excellent terms with the natives. At the Institute he studied architecture, but as this was too trying for his eyes he went to New York and joined the Art Students' League under Siddons Mowbray, and subsequently under Chase. He has given particular attention to etching in which he has made a reputation.

GEORGE F. SWAIN, '77, has been chosen by the traction interests in Chicago to represent them on a revaluation board which is to fix the value of the elevated lines in the city of Chicago.

K. Y KWONG, 84, who is chief engineer of the Canton-Kankow Railroad, was appointed to the advisory board of the government of China during the summer.

CHESTER L. DAWES, '09, has been appointed assistant in electrical engineering in the Graduate School of Applied Science at Harvard University.

SAMUEL A. GREELEY, '06, superintendent of the Milwaukee refuse incinerator plant, has sailed for Caracas, Venezuela, with Mr. James H. Fuertes, consulting engineer. He will be engaged upon some municipal work for that city.

WILLIAM B. FULLER, '83, a member of the firm of Johnson & Fuller, hydraulic engineers and sanitary experts, New York, has been appointed chief engineer of the Mexican Northern Power Company, Ltd., with headquarters at Santa Rosalie, Chihuahua, Mex.

HENRY M. WAITE, '90, has recently been appointed chief engineer of the department of Public Service in the city of Cincinnati. Mr. Waite was connected with the Big Four Railroad at Indianapolis after leaving the Institute, as division engineer of maintenance of way and afterward became connected with the Cincinnati Southern Railroad, as division engineer, later being made superintendent of the Cincinnati division. He next became division superintendent with the Seaboard Air Line with headquarters at Birmingham, which position he resigned to take the position of vice-president of the Clitchfield Coal Company. Mr. Waite was appointed by the reform mayor, W. C. Hunt, who succeeded in overthrowing "Boss" Cox in Cincinnati.

MORRIS KNOWLES, '91, of Pittsburgh, has been retained by the Alabama Coal Operators' Association to make a social and sanitary survey of the mining camps represented in the organization. This is in pursuance of the policy adopted last August of giving special consideration to the prevention of tuberculosis and to its cure in early stages. The present work embraces

housing conditions, water supplies, sewage and garbage disposal, and gives attention to the problems of education and recreation. During the past two years this association has directed its efforts toward accident prevention, both on the surface and underground, and in this connection has organized and trained a number of first-aid corps. Mr. Knowles has opened a branch office in the Brown-Marx Building at Birmingham of which M. R. Scharff, '09, will have charge.

HERBERT D. NEWELL, '96, has been very successful in the handling of the Umatilla reclamation project in Oregon. This project is the subject of an article in a recent number of the *Twentieth Century Magazine* in which Mr. Newell's work is particularly commended.

HOWARD BAETJER, '02, representing the Alumni Association at Johns Hopkins University, has been made a member of a committee which will have charge of the development of the new buildings of the University which will be located at Homewood, one of the suburbs of Baltimore. After leaving Johns Hopkins University, Mr. Baetjer came to the Institute and was graduated as a civil engineer in 1902.

Head of the United States Geological Survey

Waldemar Lindgren, lecturer on economic geology at the Institute, has recently been appointed chief of the United States Geological Survey by the Secretary of the Interior. Mr. Lindgren has been with the Survey since 1884 and has a world-wide reputation as an authority on the geology of ore deposits. He is a member of the National Academy of Sciences and other bodies. He was at one time associate professor of mining and metallurgy at the Leland Stanford University, California.

DEPARTMENT NEWS OF INTEREST

Temporary organization of the Department of Architecture— An Intercollegiate Architectural Competition—Changes in the Department of Chemistry

DEPARTMENT OF ARCHITECTURE.—Until a new head of the department is appointed to fill the place made vacant by Professor Chandler's resignation, the work is being carried on by a department faculty, of which Professor W. H. Lawrence, '91, is the chairman. Assistant Professor W. F. Brown, of the department of drawing, but whose work has been entirely in the department of architecture, and Professor J. O. Sumner, of the department of history, have been added to the department staff. Professor Chandler's course in specifications and working drawings is given by Mr. G. H. Ingraham, '92, architect. His lecture courses, in Influence of Materials on Architecture and in Business Relations, are to be filled this year by several practicing architects from New York and Boston. Mr. H. E. Fowler, '10, who resigned last spring to take a position with Purdy & Henderson of New York, has been replaced by Mr. M. M. Cory, of the civil engineering department, as half-time instructor in architectural engineering.

The total registration in the second, third, fourth and graduate classes is one hundred and fourteen, the same as last year, and continues the record then made of the largest enrollment in the history of the department. This year's class in advanced design is larger than at any previous time, there being thirteen members, all of exceptional strength and promise. In addition to four graduate-students from our own department, we have twenty-one students holding college degrees, besides twenty-four men who have had from one to three and a half years of college training. The mingling with our undergraduates of this class of men, as well as those coming for special work with two or more years of office experience, tends materially to broaden and mature the viewpoint of our students. There has been a gratifying increase in the number of students in the architectural engineering option, there being twelve students in the fourth-year class,

ten of whom are candidates for graduation. This large class, together with the large number of students in the second and third years who intend to enter the option, has made possible the formation of the Architectural Engineering Society, which will be closely affiliated with the Architectural Society of Option I students.

His Honor Mayor Fitzgerald has presented us with a small-scale plaster model of the memorial band-stand which is being erected on Boston Common in honor of the late George F. Parkman. It is of interest that the architects for the Parkman Memorial are Messrs. Derby, Robinson & Shepard, all former students of the department.

At a committee meeting of representatives from Harvard, Columbia, Cornell, Universities of Michigan and Pennsylvania, and the Institute, held recently in New York, final arrangements were made for an annual intercollegiate competition and exhibition. Mr. Lloyd Warren, of New York, has generously offered two prizes of \$90 and \$60 respectively, to be competed for in two classes: Class I, open to the advanced and fourth-year students in design; Class II, open to third-year students. Not more than ten *projets* from each class in each school will be selected for final judgment. The jury will consist of one representative selected by each school, but no member of the instructing staff shall be a member of the jury. After the prizes and mentions have been awarded, all of the drawings submitted in the competition will be exhibited at each school. The detailed arrangements have been carefully made to preserve anonymity. The preliminary sketch will be made February 28, 1912, and the final drawings handed in April 3. It is felt that this opportunity for the students of the different schools to see each other's work will be particularly stimulating, and that this effort for coöperation between the schools can be made a tremendous factor for good in the general advancement of architectural education.

DEPARTMENT OF CHEMISTRY AND CHEMICAL ENGINEERING.—The personnel of the instructing staff has undergone a number of changes since last year. The death of Mrs. Richards has removed one of the most active and loyal members, as has already been noted in the REVIEW. Her work is now carried on by Dr. John F. Norton (V, '06) who completed the requirements for the doc-

torate at Chicago University in September. He has recently been associated with Professor Edwin O. Jordan (VII, '88) in the study of problems of sanitation and brings to his work at the Institute much enthusiasm. Mr. R. W. Gilbert (XI, '09), who was associated with Mrs. Richards for two years, also gives a part of his time to this instruction this year.

Professor Bardwell, V, '84, resigned at the close of the year from the position long held by him at the Institute and has accepted a position at Case School of Applied Science at Cleveland, where he has charge of the instruction in inorganic chemistry. He has shared in the development of our first-year courses in chemistry since the days of Professor Nichols and the Institute is indebted to him for a large amount of loyal and helpful service. He is much missed by many friends and associates.

While not technically a member of the instructing staff, Mrs. Stinson has probably corrected more mistaken notions and helped to form more scientists than any other single member of the department. As noted elsewhere in this issue, she reluctantly decided to relinquish her active duties at the close of the last college year, after more than forty-six years of service. It goes without saying that her cheery presence is much missed, even though she often looks in upon us for a short time.

Mr. Paul S. Fiske, formerly assistant in inorganic chemistry and later a student at Zürich, with an Institute Fellowship, has returned to us as instructor, after receiving the degree of Doktor der Naturwissenschaften. With him is associated Dr. Edward Mueller, a graduate of Harvard, who later received his doctorate from the same university. Doctor Mueller has taught at St. Louis, and later at Tufts College. Both these young men bring much fresh enthusiasm into our corps of workers. Both are associated with Professor Spear who has charge of the laboratory instruction given to the beginners in chemistry.

Mr. W. T. Hall, '95, and Dr. R. S. Williams, '02, have been promoted to the Faculty. Professor W. H. Walker has been granted leave of absence for the present term and is spending the time at his summer home in Maine which he has modified for winter use. His absence is not occasioned by any serious illness but is more of a precautionary measure, taken in consequence of a slight overstrain. There is every expectation that he will take up his work in February with even greater vigor than formerly. Professor W. K.

Lewis, '05, is in charge of the research work in Doctor Walker's absence. Of the assistants of last year, Messrs. Bierer, White, Waters, Spaans and Rupert resigned, and Messrs. Haslam, Zimmerman, Allison, and Gravely of the class of 1911 have been added to the staff; also Mr. John A. Gann, from the Case School of Applied Science, and Mr. Leon A. Salinger. Messrs. Rosenstein, Gegenheimer and Connolly were promoted to instructorships.

During the summer, room 20 Walker was converted into a laboratory to be used in conjunction with the other laboratory of analytical chemistry on that floor, and room 9 in the basement of Engineering C was transformed into a laboratory for theoretical chemistry and the undergraduate work all removed to that floor. The supply room in the laboratory of inorganic chemistry, on the top floor of the Walker Building, was materially altered and connected with the private laboratory, and the entrance to the supply room on the third floor has been enlarged, greatly to its improvement.

Dr. W. K. Lewis is offering some new courses dealing with chemical engineering problems of special industries. Further courses for graduate students are also under contemplation. The laboratory work for first-year students is undergoing some revision under Doctor Spear's direction. Monthly meetings of the Faculty members of the instructing staff are held for the discussion of matters of general importance, as well as occasional conferences of the entire staff where the work of the branches of the department is undergoing a critical review.

The department is well represented in the International Congress of Applied Chemistry which meets next September in Washington and New York. Professors Walker, Noyes, Gill, Spear and Talbot are among the officers of the various sections, and many of our graduates are also included; notably, Dr. W. R. Whitney, '90, and Mr. A. D. Little, '85. Several members of the department will attend the winter meetings of the scientific societies at Washington and will present papers. Professor Fay has been invited by the authorities of the Naval Academy at Annapolis to lecture to their students and will combine this with his visit to Washington.

MISCELLANEOUS CLIPPINGS

The change that has come over the spirit of our dream in the matter of architecture is well shown by the drawings now being published of the proposed new buildings for the Massachusetts Institute of Technology, supposing the same to be erected according to plan on the northern side of the Charles River Basin. Nothing more unlike the old-fashioned New England college type could be imagined than this projected array of be-columned, be-domed and be-porticoed structures facing the pleasant waters of the Charles. The contrast between the new Tech and the old Harvard will be marked—and not entirely to the disadvantage of Harvard. The new Tech buildings will resemble much more the later home of the Harvard Medical than the venerable and altogether dignified buildings at Harvard Square.

Of course one's regret at this must be mitigated by the fact that the needs of a technical school do not lend themselves to the older style of architecture—which was more concerned with the housing of students than with providing special laboratories and lecture rooms. The college buildings of Harvard proper, as erected in recent years bear but little resemblance to those older piles of sombre brick at the western side of the Yard. And on the whole we incline to regard it as highly appropriate that the technical schools of the future should, by their outward and visible appearance, emphasize their difference of purpose from that of the classical college. Technical schools, bent on training technical efficiency to the nearest approaches of perfection, need appropriate buildings that speak efficiency. The older colleges, likely to drift once again back to the old insistence on scholarship and the humanities after a rather wild excursion into scientific realms, may with profit stick to the architecture that a hundred old buildings at Yale, Harvard, Amherst, Williams, Dartmouth, Bowdoin and others have made almost classical.

The projected Technology is undeniably handsome. It is going to convert the other side of the Charles from an open waste into a thing of beauty. But it is going to speak in a most insistent tone of the modern trend in education as distinguished from that education which our forefathers knew and planted in the wilderness. The undefinable beauty of New England colonial naturalness will continue to cling to the old brick row, and doubtless will surpass the trim, alert, Hellenized, Romanized buildings that in future will give us our engineers and our chemists.

—*Lowell Courier-Citizen.*

The discussion in Cambridge over the advisability of closing a street in order to make available for the Institute of Technology the site on the land fronting upon the Charles River Basin, and the statement by President Maclaurin that the school assuredly will not go where it is not wanted, gives local pertinence to the striking facts which were brought out in a recent address in New Haven by Anson Phelps Stokes, Jr., secretary of Yale University. In the Connecticut city, there have been for years differences of opinion as to Yale's charter exemption from certain taxes. Recently the discussion took on rather a bitter tone, and finally representatives both of the city and the university met to swap opinions in frank and friendly

fashion. Before this gathering Secretary Stokes gave the first compilation ever made of Yale's contributions to New Haven.

He showed that Yale makes an indirect contribution to the city of more than \$3,000,000 a year, that the school pays the city directly in the shape of taxes \$60,000, and that other direct financial contributions amount to \$157,000 per year. The indirect payments included the sums spent by the students in the city for their living expenses, books, furniture, clothing and amusements; the amounts paid by the university for coal, light, water and for food and service in its dining hall; the half-million for this year's building operations, the moneys for the new buildings having come entirely from parties outside New Haven; the sums brought to the town by the visitors who come to the big football and other games; and the university payroll of \$1,000,000, which ranks Yale as an employer only behind the railroad and two great manufacturing plants. For public improvements and for the policing of its property the university used \$9,000, and in the form of scholarship and other aid to local students more than \$87,000. The secretary showed also that, contrary to the general opinion, the university was not entirely exempt from taxation, paying taxes on \$334,000 worth of property, her professors and higher officers paying taxes on property worth nearly \$2,000,000, and her assistant professors on an additional third of a million. The fraternity and society houses paid taxes on three fourths of a million. There was reference in the address also to the educational advantages which Yale brought to New Haven and the multitude of incidental benefits thus conferred upon the city.

Probably as strong a statement as has been made of the general argument for the university from the financial viewpoint alone was this: "The business men, headed by the chamber of commerce, rejoice, and rejoice rightly, when a good new industry with a capital of \$100,000 is moved to New Haven; but what about a corporation with a capital in addition to plant of over \$13,000,000, employing regularly 866 people with a payroll of nearly \$1,000,000, and a body of apprentices 3,000 strong, who spend annually over \$1,000,000 in the business houses of the town? Is that not a business worth something to the community, especially when it trains its youth, advertises its city, constantly attracts to it new capital and adds dignity to its life?" And he stated, also, that because of the good buildings put up by the university the value of its real estate had been created by the college itself.

Such considerations as these are not often brought to the attention of the taxpayers of a university city. The New Havenites have been thinking of the \$182,000 which is the total tax exemption of Yale, a sum which Secretary Stokes would reduce by the \$87,000 which the college gives outright to help educate the boys of the town. It is good for Cambridge, with Harvard as its leading industry, and the prospect of the coming of "Tech," to ponder these things. The relations of town and gown will be entirely amicable when each appreciates the other.—*Boston Herald.*

Three of the papers presented at the Chicago convention of the American Institute of Electrical Engineers showed the importance of the position occupied by the public-service commissions as intermediaries between the consuming public and the public-service corporations. In his presidential address Professor Jackson emphasized the need of a policy of fairness toward both interests, and the partici-

pation by the engineer in the future relations between the companies and the consumers upon whose patronage the former thrive, which latter point was reiterated later by Mr. John W. Lieb, Jr. Perhaps if there had been more engineering and less promotion and speculative banking in the affairs of these companies in the past, the public would not have been so insistent on rigorous legislation for the regulation of public-service corporations. However that may be, the established properties require now a wholesome character of business management, to which the engineer can contribute in a great and increasing degree, and the spirit of the times makes it logical for the engineer to assume a leading place in the management of public utilities. The questions of capital value and the life of materials, a collateral part of the study of depreciation, are in particular, issues for the engineer and the accountant to meet, and they involve the very life of the companies. Among the complex relations with which the engineer and the commission are to deal, these two questions stand forth to demand earnest and just consideration. The full and frank public statements of financial results which Professor Jackson recommends will help in making fair decisions and a public spirit under which these questions will lose their threatening aspect.—*Engineering Record*.

The Department of Mining and Metallurgy of the Massachusetts Institute of Technology is located in the basement of Rogers Building, the main administrative building of the Institute. In a very small space is included the entire laboratory equipment, offices and lecture room of the department. The lack of floor space interferes to a great extent with the convenient arrangement of the apparatus.

The system of arrangement of the apparatus is very flexible, so that practically any flow sheet of machinery desired can be made. The machines are all well designed, small models of standard machinery, and require a very small amount of ore to be operated. It will be of interest to note whether this arrangement is followed so closely in the new laboratory to be built on the new site of the Institute in Cambridge. The ore-dressing laboratory contains the following machines: a Blake breaker, a Gates breaker, Cornish rolls with an automatic feeder, a Sturtevant roll jaw crusher, triplex rolls, screens for graded crushing, laboratory grinders, a three-stamp prospecting battery, a copper apron plate, a Frue vanner, a clean-up barrel, a trommel, two Collom jigs, two Harz jigs, a ball mill, a pebble mill, almost every type of classifier, a convex continuous round slimer, a Callow tank, two Wilfley tables, an Embrey slimer, a Wilfley slimer, a Wetherill magnetic separator, a Ball-Norton magnetic separator, a Richards pulsator jig, ten amalgamation pans, a steam dryer, and several slime tables. No automatic sampler is installed. All the sampling is done by hand.

For teaching wet metallurgical processes the metallurgical laboratory contains stationary leaching vats, a large chlorination barrel, frames for leaching and agitation in flasks, vats for electrolytic deposition, and other necessary apparatus. For the metallurgy of copper and lead there is a reverberatory roasting furnace, a cupellation furnace, a crucible furnace, a gas-fired muffle roasting furnace, a Bruckner roasting cylinder, a circular blast furnace, a roasting stall, a reverberatory smelting furnace, and a briquetting machine. The necessary apparatus for metallographic study is also installed.

At this institution a noteworthy feature is the systematic work required of the student in the ore dressing and metallurgical laboratories. Experiments are per-

formed not merely to illustrate the principles of some piece of machinery, as is often the case in ore-dressing laboratories, but also to teach the student how to carry on systematic and exact investigations. All work is quantitative and not qualitative. The experiments are continuous in that the student works with the same ore from the sampling and crushing to the final concentration. A thorough study of furnace processes is made in the various furnaces with a careful checking up of the heat losses by balance sheets. The performance of laboratory work in this manner is made possible by the large corps of assistants who work in conjunction with the students. These assistants check up the work of the students and tabulate results for the whole class. After all results are in, several hours are spent in a discussion of them. Indications of the frequent operation of the machinery and the furnaces were much in evidence at this laboratory.—*Colorado School of Mines Magazine.*

The new du Pont Boulevard, that is to bisect Delaware, is to be made not only a model highway, but a factor in industrial development. At the end of every twenty-mile stretch of road, it is proposed to establish an experiment farm in charge of scientific farmers, to demonstrate the most improved methods in agriculture. Perhaps Delaware may yet renew her old distinction as a peach-growing state.—*Boston Transcript.*

If all goes well—and it doubtless will—the Greater “Tech” will be one of the handsomest features of the coming Greater Boston. For many a year the institution now scattered over the Back Bay has enjoyed a reputation frankly envied by nearly every technological school in the world. Its progressive policy, continually blossoming into practical results of benefit to all civilization, has been recognized by enlightened nations, who have either sent students to it or contributed to its brilliant teaching staff. All of which is an old story, and the only point in telling it again is that these plans now in the course of development for the new “Tech”—especially Professor Despradelle’s picturesque group of white concrete buildings comfortably spread over some twenty-five of the fifty allotted acres on the Cambridge side of the Charles—give promise of a home that will in every way be worthy of the Bay State’s protégé.—*Boston Journal.*

The Finance Commission seems to be digging right down to the bottom of things this year and the treasurers will be required to keep a proper set of books, give and receive receipts for all moneys expended and carry on their respective activities in a business-like manner. This is a matter of long standing, and in the past a good many of the accounts have been kept in a very lax manner and one of the chief duties of this commission is to see that this is remedied. We hope that the representatives of all the activities will take this matter to heart and perform their duties in the manner suggested by the members of the commission and all will be well. It is better to do things right now than to have to dig down deep in your pocket later —*The Tech.*

BOOK REVIEWS

THE SUN, by Charles G. Abbot, '94. D. Appleton & Co.

Much has been done for the education of the public in astronomy through the admirable treatises, more or less popular in their character, which have been written by such noted astronomers as Newcomb, Langley, Ball and Young. The treatise on the sun, by the last-named, was at once one of the most readable and most thorough works of the kind which has ever appeared, but a considerable time, some fifteen years, has elapsed since the publication of the last edition, so that it is far from representing our present knowledge of solar phenomena. The volume now under review, whose author is one of the ablest of the younger school of astrophysicists, is a worthy successor to that of Professor Young. It is of similar character, and will fill the need which has existed for some years of a readable work which shall make clear the present views of scientific men regarding the central luminary of our system.

It is not alone the general reader who will be interested in Mr. Abbot's book. To the professional student of physical science it will be even more valuable, since it contains in its carefully arranged chapters a large amount of information which has not hitherto been collected and made accessible regarding the most recent instruments and methods of solar investigation and the results which have been reached thereby, among which those of the author himself, though most modestly stated, are far from being of minor importance.

Where all is so excellent it is difficult to single out particular portions as especially worthy of notice. But of course it is to the discussion of later rather than of earlier work that one at all familiar with the subject naturally first turns his attention. Newly devised methods of research and improved measuring apparatus have given us knowledge of facts regarding the sun that we should scarcely have believed could possibly become known to us.

Highly prominent among such researches stands forth the work of two of the graduates of the course in physics at the Institute, the magnificent results with the spectroheliograph obtained by its inventor, Hale, and his colleagues, together with his discovery of the existence of a magnetic field in sun-spots, and the most careful, laborious and thoroughly admirable investigations regarding the "solar constant" by Abbot. Of these an excellent and quite detailed account is given. It may also be mentioned in this place, although a matter quite outside the scope of Mr. Abbot's book, that the early application, at least in this country, of the dry-plate process to the photography of stars, nebulae and similar celestial objects was the result of the realization of the possibilities of that process by another graduate of the same course, Professor William H. Pickering, now of the Harvard College Observatory.

The earlier observations and more recent interpretations of many of them are also fully considered. In this connection it is interesting to note that the frontispiece of the volume is Professor Langley's well-known drawing of "a typical sun-spot" which occupied the same position in Professor Young's treatise. That this drawing is still regarded by astronomers as giving the best comprehensive repre-

sentation of this class of objects, although made forty years since, is certainly a great witness to Langley's acuteness of observation and clear judgment as to what is really characteristic.

To state in particular what is interesting in the book before us would be to print its table of contents. But a few points may be singled out for special mention.

The investigations of Mr. Abbot by the use of an improved form of pyrheliometer of his own devising, with observations made at the Smithsonian Astrophysical Observatory, Washington, and on the summits of Mt. Wilson and Mt. Whitney, have led to remarkably concordant results as to the atmospheric absorption of heat, so that he feels justified in assuming 1.95 gram-calories per square centimeter per minute as an accurate value of the "solar constant," a result much lower than that of Langley, hitherto the most widely accepted. A determination of the sun's temperature by several different methods, which give fairly concordant results, make this over 6,000° absolute and possibly even 7,000°. The chapter on the photosphere contains a number of spectroheliograms taken in calcium and hydrogen lines which show the location, distribution and elevation of these elements.

In Chapter VI, "What is the Sun," the author discusses and criticises the generally accepted views of recent times. He sets forth with much strength his reasons for dissent from these and for holding the sun to be wholly a globe of incandescent gas without solid or liquid material as an essential element of its photosphere. He considers the contraction hypothesis of Helmholtz as, on the whole, adequate to meet the requirements of both geology and physics as to the magnitude of the total heat emission of the sun in past ages, though regarding the influence of radio-active processes as not yet determined. The chapter, "The Sun as the Earth's Source of Heat" discusses the absorbent effect of the earth's atmosphere for the solar radiations, the "solar constant," the light of the sky, and, what is of particular interest, the question whether changes in the rate of solar emission are detectible. That such is in fact the case seems to be rendered highly probable by the results of Mr. Abbot's recent researches. The chapters on the "Sun's Influence on Plant Life" and "Utilizing Solar Energy" contain much interesting information not hitherto readily accessible. In the final chapter "The Sun among the Stars" the author takes a wider range, and gives a brief but lucid discussion of present views regarding stellar evolution, the evolution of the solar system, and like problems. In this as throughout the whole volume he is careful to make clear what is really knowledge and what is still surmise. This chapter is illustrated by a number of exquisite plates of nebulae taken by Ritchey with the two-foot reflector at the Yerkes Observatory and the five-foot reflector at Mt. Wilson.

Mr. Abbot is to be congratulated upon having produced a model treatise. No one desiring an acquaintance with the present state of solar research can afford to set it aside without careful reading.

C. R. CROSS, '70.

AN AMERICAN RAILROAD BUILDER—JOHN MURRAY FORBES. By Henry Greenleaf Pearson. Boston, Houghton, Mifflin Co. Cloth, 5 in. x 7½ in.; 196 pages. Price, \$1.25 net.

This is a biographical sketch of one of the most gifted men in American railway history. Colonel Forbes, who died in 1898 at the age of 86, was an important figure in the Michigan Central and the Chicago, Burlington & Quincy for many years, and this book is an entertaining sketch of his activities in those fields. Ex-

tracts from advance sheets of the book were published in the *Railway Age Gazette*, December 2, December 23 and March 31 last. Mr. Pearson's work is made up in part of extracts from letters and other data written by Colonel Forbes himself. The reader will find that Forbes was a vivid writer, and that Mr. Pearson has edited his material with excellent judgment. As is observed by the publishers in their circular, stories of the wise, honest and public-spirited work done by men like Forbes in the railway field deserve attention, not only because of their own intrinsic worth, but also as an offset to those narratives which have perhaps been given undue prominence in the literary world, which have told of the evil deeds done in connection with roads of unfortunate memory. The subject of this sketch was a man of imagination, of daring and of militant honesty; and, although he flourished long before the troubles of rate making and governmental activities were with us, his career will furnish entertaining reading to every railway man who takes an interest in "human documents," and in the formative period of the railway era.—*Railway Age Gazette*.

PROCEEDINGS OF THE CONGRESS OF TECHNOLOGY, held in Boston, April 10 and 11, 1911. Edited by a Committee of the Faculty of the Massachusetts Institute of Technology. McGraw-Hill Book Company, 239 West 39th Street, New York. Over 400 pp., 6 x 9. Illustrated. Cloth, \$3 net.

Among the addresses dealing more or less with municipal problems are the following:

A collection of the papers delivered at the fiftieth anniversary of the opening of the Massachusetts Institute of Technology, celebrated in Boston on April 10 and 11, 1911. The range of topics covered is wide and the material timely. The book is of first importance as a contribution to engineering and technical literature. It is not merely a record of an event of interest to the alumni. The list of contributors includes a large number of the leading scientists and engineers of the United States. The papers are grouped in six sections under the following general headings:

Section A.—Scientific Investigation and Control of Industrial Processes.

Section B.—Technological Education in its Relations to Industrial Development.

Section C.—Administration and Management.

Section D.—Recent Industrial Development.

Section E.—Public Health and Sanitation.

Section F.—Architecture.

The Prevention and Control of Fires Through Scientific Methods, E. V. French, '89.

The Public Function of the Laboratories of Schools of Engineering, H. W. Hayward, '96.

The New Profession of Economic Engineering, R. W. Babson, '98.

Technical Education and the Contracting Engineer, S. B. Ely, '92.

Reliability of Materials, W. C. Fish, '87.

A Consideration of Certain Limitations of Scientific Efficiency, H. G. Bradlee, '91.

Scientific Industrial Operation, Tracy Lyon, '85.

Improvement in Efficiency of Electric Lighting Properties and What the Public Gains Thereby, William H. Blood, Jr., '88.

Advent of Illuminating Engineering, John S. Codman, '93.

Recent Developments in Bridge Construction, Frank P. McKibben, '94.

The Manufacture and Use of Asbestos Wood, Charles L. Norton, '93.

The Technics of Iron and Steel, Theodore W. Robinson, '84.

Profitable and Fruitless Lines of Endeavor in Public Health Work, Edwin O. Jordan, '88.

The Technical School Man in Public Health Work, Harry W. Clark, '88.

Present Status of Water Purification in the United States and the Part that the Massachusetts Institute of Technology Has Played, George C. Whipple, '89.

The Pollution of Streams by Manufacturing Wastes, William S. Johnson, '89.

Sewage Disposal with Respect to Offensive Odors, George W. Fuller, '90.

The Food Inspection Chemist and His Work, Herman C. Lythgoe, '96.

Factory Sanitation and Efficiency, C.-E. A. Winslow, '98.

A Review of the Work of the Sanitary Research Laboratory and Sewage Experiment Station of the Massachusetts Institute of Technology, Earle B. Phelps, '99.

Bacteria and Decomposition, Simeon C. Keith, '93.

Landscape Architecture: A Definition and a Brief Résumé of Its Past and Present, Stephen Child, '88.

THE FIRST DECENNIAL RECORD OF THE CLASS OF 1900, published by the class, 1911, pp. 113, cloth, frontispiece.

The decennial record of the class of 1900 which was recently published is practically a directory of the class, with short biographies. Two interesting features of the book are suggestions to President Maclaurin in regard to the Institute, which consist of excerpts from letters bearing on that subject, and another department in which members make suggestions in regard to increasing class interest. It is well printed, and is an attractive book.

PUBLICATIONS OF THE INSTITUTE STAFF

ROBERT PAYNE BIGELOW. Guide to the Libraries of the Massachusetts Institute of Technology. Second edition. p. 16. Size 16mo. 1911.

ARTHUR A. BLANCHARD. Synthetic Inorganic Chemistry. A Laboratory Course for First Year College Students. John Wiley & Sons. p. 184. Illustrated. Size 12mo. 1910.

ARTHUR A. BLANCHARD. Viscosity of Solutions of the Metal-Ammonia Salts. *Journal of the American Chemical Society*. p. 5. January, 1912.

WILLIAM C. BRAY and E. L. CONNOLLY. The Hydrolysis of Iodine and of Bromine. A correction. *The Journal of the American Chemical Society*. Vol. 33, p. 1485. (pp. 3.)

CHARLES R. CROSS. Notes on Mechanics. Second edition, revised. Printed. Vol. 1. 1911.

LOUIS DERR. A series Parallel Transformer Switchboard. *The Electrical World and Engineer*. Vol. 58, p. 1. (814-5.) Illustrated. 1911.

LOUIS DERR. Double-Coated Plates for Tourists. *American Annual of Photography*. Vol. 25, p. 2. (189-191.) Illustrated. 1911.

HAROLD A. EVERETT. The Effect of Waves upon a Taffrail Log. *Society of Naval Architects and Marine Engineers*. New York. p. 12. Illustrated. Size 8 x 10. November 17, 1911.

K. GEORGE FALK. The Electron Conception of Valence II. The Organic Acids. *The Journal of the American Chemical Society*. Vol. 33, p. 1140 (pp. 12).

HENRY FAY. A Comparison of the Heat-Treatment of an Acid and Basic Open Hearth Steel of Similar Composition. *Proceedings American Society of Testing Materials*. 1911.

HENRY FAY. Some Causes of Steel Failures in Ordnance Material. *Proceedings American Society Testing Materials*. 1911.

HENRY FAY and JOHN M. BIERER. The Relationship between the Heat Treatment, Physical Properties and Microstructure of Low Carbon Nickel Steels. *Proceedings American Society Testing Materials*. 1911.

A. H. GILL. A Short Handbook of Oil Analysis. Philadelphia. p. 188. Illustrated. Size 8vo. 1911.

A. H. GILL and A. E. SHIPPEE. On the Liability of Wool Oils to Gum on Oxidation. *Journal of Engineering and Industrial Chemistry*. Vol. 3, p. 73. (pp. 1½.) February, 1911.

A. H. GILL and A. E. SHIPPEE. A Comparison of Methods of Determining Unsaponifiable Matter in Wool Oils. *Journal of Engineering and Industrial Chemistry*. Vol. 3, p. 72. (pp. 1.) February, 1911.

H. M. GOODWIN. Electrochemistry oils recent development. *Technology and Industrial Efficiency*. p. 304-314.

SELSKAR M. GUNN. Modern Board of Health Methods in Small Cities. *Journal of American Public Health Association*. Vol. 1, No. 5, p. 8. (pp. 373.) Illustrated. May, 1911.

SELSKAR M. GUNN. The Health Code of a Small Community. *Proceedings of Ninth Annual Meeting of the New Jersey State Conference of Charities and Correction*. 1910.

H. O. HOFMAN. Recent Improvements in Lead Smelting. *The Mineral Industry*. Vol. XIX., p. 436. 1910.

G. F. LOUGHLIN. Contribution to the Geology of the Boston and Norfolk Basins, Massachusetts I. The Structural Relations between the Quincy Granite, and the Adjacent Sedimentary Formations. *American Journal of Science*. Vol. XXXII. (pp. 17-32). Illustrated. 4 text figures. July, 1911.

RICHARD C. MACLAURIN. Science and Religion. *Outlook*.

RICHARD C. MACLAURIN. The Sherman Act. *Rollins Magazine*. October, 1911.

EDWIN F. MILLER, C. W. BERRY, J. C. RILEY. Problems in Thermodynamics and Heat Engineering. Wiley & Sons, New York. Vol. 1, p. 67. October, 1911.

M. I. T. *Bulletin of the M. I. T.* Programme. Boston. Vol. 46, No. 4, p. 422. Illustrated. Size 8vo. June, 1911.

M. I. T. Opportunity for Advanced Study and Research. Boston. p. 4. Size 4to. March, 1911.

F. J. MOORE. Experiments in Organic Chemistry. New York. p. 27. September, 1911.

LEWIS E. MOORE. Review of "Mechanics of Internal Work in Elastic Bodies" by I. P. Church. *Engineering News*. New York. p. 1-3. April 13, 1911.

LEWIS E. MOORE. Review of "Kinetic Theory of Engineering

Structures" by Molitor. *Engineering News*. New York. p. 1 $\frac{1}{8}$. May 18, 1911.

ARTHUR A. NOYES and K. G. FALK. The Properties of Salt Solutions in Relation to the Ionic Theory. *The Journal of the American Chemical Society*. Vol. 33, p. 1436. (pp. 24.)

ARTHUR A. NOYES and R. H. LOMBARD. The Conductivity and Ionization of a Penta and a Hexa-ionic Salt. *The Journal of the American Chemical Society*. Vol. 33, p. 1424. (pp. 13.)

ARTHUR A. NOYES, W. C. BRAY, W. D. HARKINS, W. J. WINNINGHOFF, C. P. BOGGS, F. S. FARRELL and M. A. STEWART. The Effects of Salts on the Solubility of Other Salts. Papers I to VII. *The Journal of the American Chemical Society*. p. 1644, 1807. (pp. 108.)

CHARLES PALACHE and CHARLES H. WARREN. The Chemical Composition and Crystallization of Parisite and a New Occurrence of it in the Granite-Pegmatites at Quincy, Mass., U. S. A. With Notes on Microcline, Riebeckite, Aegirite, Ilmenite, Octahedrite, Fluorite, and Wulfenite, from the Same Locality. *The American Journal of Science*. Vol. XXXI. June, 1911.

C. H. PEABODY. Naval Architecture partially rewritten. John Wiley & Sons. New York. Vol. 1, p. 641. Illustrated cuts. Size, octavo. 1911.

C. H. PEABODY. Thermodynamics of the Steam Turbine. John Wiley & Sons, New York. Vol. 1, p. 282. Illustrated cuts. Size, octavo.

C. H. PEABODY. Tests on the Froude. *Society of Naval Architects and Marine Engineers*. p. 29. Illustrated. Size, quarto. 1911.

HAROLD PENDER. Principles of Electrical Engineering. New York City. Vol. 1, p. 438. Illustrated, diagrams. Size 8vo. September, 1911.

EARLE B. PHELPS (with COL. W. M. BLACK, U. S. A.). Location of Sewer Outlets, and the Discharge of Sewage into New York Harbor. A report made to the Board of Estimate and Apportionment of New York City. p. 193. Two colored maps and diagram. March 23, 1911. Reprinted in Vol. VII, "Contributions from the Sanitary Research Laboratory and Sewage Experiment Station."

EARLE B. PHELPS (with C.-E. A. WINSLOW). Investigation on the Purification of Boston Sewage. *Journal Infectious Diseases*. Vol. VIII. (pp. 259-98.) 1911.

EARLE B. PHELPS. The Chemical Disinfection of Water and Sewage. Its Recent Development and Present Status. Paper before American Public Health Association. 1910. *Journal American Public Health Association*. Vol. I. (pp. 618-622.) 1911.

EARLE B. PHELPS. The Disinfection of Sewage and Sewage Filter Effluents. Paper before Boston Society of Civil Engineers, December 1, 1909. *Journal Association of Engineering Societies*. Vol. 46. (pp. 24-45.) 1910.

EARLE B. PHELPS. Problems in the Sanitary Handling of Oysters. Paper before Third Annual Convention of Oyster Growers' and Dealers' Association of North America. *The Fishing Gazette*. Vol. 28. (pp. 705-6.) 1911.

EARLE B. PHELPS. Some Experiments upon the Removal of Oysters from Polluted to Unpolluted Waters. *Journal American Public Health Association*. Vol. 1. (pp. 305-9.) 1911.

EARLE B. PHELPS. Sewage Purification: Its Theory and Present-day Practice. *Journal Engineering Society of Pennsylvania*. Vol. II. (pp. 447-479.) 1910.

ROBERT H. RICHARDS. Hindered Settling Classifiers. *Engineering and Mining Journal*. Vol. XCI, p. 415. (pp. 7.) Illustrated. February 25, 1911.

ROBERT H. RICHARDS and CHARLES E. LOCKE. Progress in Gold Milling in 1910. *Mineral Industry*. Vol. XIX, p. 325. (pp. 19.) 1911.

ROBERT H. RICHARDS and CHARLES E. LOCKE. Progress in Ore Dressing and Coal Washing in 1910. *Mineral Industry*. Vol. XIX, p. 46. pp. 745. Illustrated. 1911.

ROBERT H. RICHARDS and CHARLES E. LOCKE. Progress in Gold Milling in 1910 for *Mineral Industry*. Vol. XIX, p. 290. (pp. 35.) Illustrated.

ROBERT H. RICHARDS and CHARLES E. LOCKE. Progress in Ore Dressing and Coal Washing, *Mineral Industry*. Vol. XIX p. 745. (pp. 47.) 1911.

CHARLES M. SPOFFORD. Earthquake Effects on Structures at Cartago, Costa Rica. *Journal of the Association of Engineering Societies*. February, 1911.

CHARLES M. SPOFFORD. Earthquake Engineering. *Science Conspectus*, Society of Arts of Massachusetts Institute of Technology. p. 41. January, 1911.

CHARLES M. SPOFFORD. The Theory of Structures. McGraw-Hill Book Company, New York. Vol. 1. (pp. 411.) Size octavo. 1911.

CHARLES H. WARREN and CHARLES PALACHE. The Pegmatites of the Riebeckite-Aegirite Granite of Quincy, Mass., U. S. A.; Their Structure, Minerals and Origin. *Proceedings of the American Academy of Arts and Sciences*. Vol. XLVII, No. 4. Illustrated. July, 1911.

NEWS FROM THE CLASSES

1872.

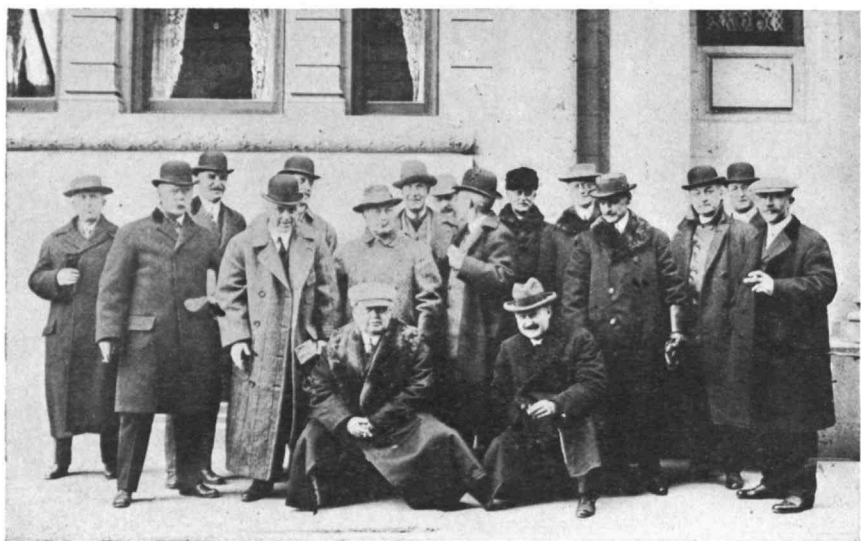
C. FRANK ALLEN, *Sec.*, Mass. Inst. of Tech.,
Boston, Mass.

The class will have its fortieth reunion some time next summer, not far from June 1. We are not quite sure how many will attend but A. W. Sawyer, who is in Seattle, says that he hopes to come, and incidentally, he is somewhat boastful about his two fine grandchildren.—E. C. Locke is in New York City publishing *Forest and Stream*. He has been in this line of work for a good many years.—James R. Chapman is in Santa Barbara, Cal., and we don't know whether he is likely to come or not.—W. H. Stearns spends his time partly in Joplin, Mo., and partly in Boston. We are going to try to get hold of him before long.—Patch has been suffering some from an attack of rheumatism but appears to be in fair order at last accounts.—The secretary was fortunate enough to be able to take a trip across the water last summer, taking his family with him. He spent most of his time in Switzerland, and also visited the Italian lakes, saw something of Holland and also enjoyed a trip down the Rhine.

1877.

RICHARD A. HALE, *Sec.*, Lawrence, Mass.

The Maryland Steel Company, F. W. Wood, president, is exceedingly busy at its shipyards at Sparrows Point. The company has recently received contracts from the American-Hawaiian Steamship Company for two colliers of 12,500 tons capacity each and five freight steamers of 10,000 tons capacity each to be used for the Atlantic-Pacific trade. The steamers are 425 feet in length. On her maiden trip from New York to Seattle, the *Kentuckian*, built by the Maryland Company, covered the 14,000 miles in a remarkably short time. This performance influenced the award of later contracts. The stimulus of activities in ship-building are the results of the influence of the Panama Canal. The demand for rails is very small but there are some indications of a revival.—John Alden is very busy in the arrangement of his department in the Pacific Mills new print works, which, combining with the Cocheco of Dover and the Hamilton of Lowell, will be the largest of its kind in the country. Many new and important details have to be arranged for in connection with its economical



THE CLASS OF '85 EN ROUTE FOR SAUNTAUG INN

operation.—The present chemical works and laboratory will be moved to the new location in South Lawrence.—Faunce, Plimpton and Stimpson have sons at the present time in various courses at the Institute.

1881.

FRANK E. CAME, *Sec.*, Metcalfe Apartments, Westmount, Quebec, P. Q.

FRANK H. BRIGGS, *Asst. Sec.*, 22 High Street, Boston, Mass.

George Mower spent the months of October and November in and around Boston.—A new class book was issued in December.—Alfred Stebbins is the engineer of construction in charge of the Henry Parkman Memorial Band Stand, on Boston Common, under Derby, Robinson & Shepard, Architects.

1882.

WALTER BRADLEE SNOW, *Sec.*, 170 Summer Street, Boston, Mass.

The American Food Journal of August 15, 1911, contains the following notice:

"Howard V. Frost, whose death was briefly chronicled in these pages last month, was graduated from the Massachusetts Institute of Technology with the degree of bachelor of science and took a doctor of philosophy degree at the University of Goettingen. He was an instructor in the Massachusetts Institute of Technology for three years; professor of chemistry in Brooklyn Polytechnic Institute four years; chief chemist of the Franklin Sugar Refinery, Franklin, La., two years; chief chemist for Swift & Company, Chicago, one year; chief chemist of the Anglo-American Provision Company, Chicago, six years; water analyst of the city of Chicago one year, and chief of the Chicago Laboratory of the Department of Agriculture until failing health compelled him to give up the work two years ago. Doctor Frost was a member of the Society of Chemical Industry, London, England, and of the American Chemical Society."

1885.

I. W. LITCHFIELD, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

At the instigation of President Plaisted, Saturday afternoon, December 2, was set apart as a special holiday by the class of '85. Luncheon was served in a private room at the Westminster, which was a jolly affair and a very fitting prelude to the festivities that followed. After luncheon this very impressive group of elderly gentlemen entered the waiting automobiles and started off to

discover Sauntaug Inn located somewhere northwest of the Lynn Marshes and in a general easterly direction from Worcester. When the '85 memorial tablets are set up, by the way, one of them will be located on the Lynn Marshes. Members who extended the hospitality of their automobiles were Pratt, Ames, Morss, Eaton and White, the last-named party who was the chairman of the delegation leading the way and whispering proper directions to his cohorts from his position at the right of line. The afternoon was a beautiful one and the trip delightful. Nearly every alley and by-way north of Boston was explored by the different delegations and when they arrived at Sauntaug Inn, they came from all points of the compass. The trip was not a long one and there was ample opportunity before dinner to make new acquaintances and renew old ones among the Tech men and others who had assembled at the trysting place to observe how a real class did things. Oakes Ames had completed ten albums of photographs which brought up memories of the celebration of the twenty-fifth anniversary of the class at Squam Lake a year ago. There were forty or fifty of these pictures, most of them in classical costumes and poses. No two dinners of the class of '85 have ever been alike and this one wasn't. The dinner, itself, was delicious, and the impromptu responses which were happily introduced by President Plaisted showed that the usual "no speech" program has been a great mistake. Charlie Richards of New York, who never misses a meeting of the class, referred but incidentally to the work of Cooper Union, New York, and Morss went somewhat into particulars in regard to the new Technology site in which he is taking some interest. During the evening the site was the subject of a toast. Frank Page of Springfield, who was one of the leaders in the movement to secure the Institute, while greatly disappointed that the way was not open for that city to secure this great scientific school, pledged the loyalty of Tech men in that vicinity, stating that when the Technology fund was raised, they would be found at the head of the list. During the evening a toast was drunk to Mr. Page. Among the guests present was Frank H. Rand, bursar of the Institute, who described the methods of book-keeping employed at the Institute and gave interesting facts connected with the great mass of humanity. Mr. Little described the new laboratories which he is building in the Fenway and which are now partly erected, terminating his remarks with some clever verses on the Mendelian theory. Among the other speakers were Billy Spalding and Charlie Brown who sang an original song written for the occasion accompanied by an attractive orchestra. During the evening a toast to the orchestra was proposed. The secretary then made a formal report and gave a general sketch of matters more or less remote from his assigned subject. He also read a poem from Mullins which was received with great applause. An early start was made for home after singing the Tree Song and

signing up the register. Those present were Steele, Page, White, Plaisted, Richards, Brown, Litchfield, Ames, Chapman, Rand, Fred Kimball, Dick Pierce, Benton, Little, Frazer, Eaton, Spalding, Morss, Pratt and Bartlett.—Tenny White has now moved from Haverhill to Brookline where he is living at 127 Egmont Street, telephone, Brookline 2676 W.—S. Cuyler Greene expected to be with us on the Sauntaug Inn trip but did not appear. He is just changing his location from Bath, Me., to Philadelphia, where he will be connected with Williamson Bros. Company.—With his usual loyalty to the Institute, McKim who is now located at Albany, recently called a meeting of the Tech men there with the intention of forming a local alumni association.—Page who has a summer place at East Wareham, invited the class to make use of his ample quarters there sometime the early part of June. He has a large summer home and another house for servants' quarters, with garage, launch, boats, etc., and has generously placed this outfit at the disposal of the class. The idea would be to make this an informal trip, running down for two or three days which would include Saturday and Sunday. We would only have to provide a cook and what provisions we would need during the time we were there. The matter will be brought up at a subsequent meeting of the class.—A. C. Fuller was present at the luncheon but because of other engagements could not go to the dinner. He is thoroughly interested in the class and intends to come out to the meetings oftener.—The secretary has received a letter from Tom Fry saying that he has just learned that our classmate, James Davenport, died on Sunday, November 19. He was married and left three small children. He has not been well for several months but his final acute illness was only of a few days' duration. Davenport was a fine fellow although not many of our class knew him. His residence was in Fall River where he has always lived. He was a partner in the firm of Gage & Davenport.

JAMES FRANKLIN DAVENPORT

The following is taken from a Fall River paper: James Franklin Davenport, one of the most highly respected residents of this city passed away at his home, No. 386 Locust Street, about 12.30 o'clock Sunday afternoon. Mr. Davenport's death did not come in the nature of a surprise to his relatives and friends, as his condition had been so serious since Friday that death was expected at almost any hour. Nevertheless it was with great sadness and with deep sympathy for the bereaved family that the community heard of his death on Sunday afternoon. Mr. Davenport had been failing in health since last July and his condition became so much worse that two weeks ago he was forced to give up business and was confined to his home where he rapidly grew weaker. Last Friday afternoon he suffered a severe relapse and it was then that his family gave up hopes for his recovery. Later he lapsed into uncon-

sciousness, and his end came peacefully shortly after noon on Sunday. Mr. Davenport was born in this city on March 10, 1864. He was the son of the late James F. and Phoebe A. B. (Ramsay) Davenport. He was educated in the local schools, graduating from the high school in the class of 1882. He entered the Massachusetts Institute of Technology in the class of 1885 and pursued a three years' course in that Institute. After leaving there he worked for several years as clerk in the office of the Merchants Mfg. Co., leaving to accept the position of bookkeeper at the Wampanoag Mills. He gave up that position in 1902 to enter the cotton brokerage business and shortly after became a partner of the firm of Gage & Davenport and was connected with that firm up to the time of his death.

Mr. Davenport was married in December, 1897, to Miss Jessie A. Gage, who survives him and also three children, Ruth, James Jr., and Clarence. His mother also survives him. The deceased was a member of King Philip Lodge, A. F. & A. M., and of the Quequechan Club. He had been an attendant of the Central Congregational Church for many years. Mr. Davenport was a man of a very genial nature and possessed a fund of quiet humor that made him a general favorite among his friends. A man of the highest integrity and honorable business methods, his death is a loss to the community at large. James F. Davenport, father of the deceased, was mayor of this city from 1874 to 1877.

1888.

WILLIAM G. SNOW, *Sec.*, 24 Milk Street, Boston, Mass.

Henry J. Horn is to become vice-president and general manager of transportation of the New York, New Haven & Hartford Railroad beginning January 1, 1912.—George V. G. Holman is very enthusiastic over the trolley road which he has been putting through to connect Johnstown and Altoona, Pa.—H. F. Pierce is also connected with this enterprise.—Addison Nickerson is one of the local engineers in charge of field work at the big Keokuk dam being built by Stone & Webster.—Several '88 men were present at the recent American Society Mechanical Engineers' convention in New York.—B. R. T. Collins, who has been professionally engaged in Akron, Ohio, a good deal of late, has been brought in touch with Frank H. Adams who is one of the well-known citizens of that place. He is treasurer of the Goodyear Tire & Rubber Co., and connected with various banking interests.—William H. Blood, Jr., has been elected president of the Electric Vehicle Association of America.

1889.

WALTER H. KILHAM, *Sec.*, 9 Park Street, Boston, Mass.

Probably few Tech men are aware of the amount of work Rollins has done in connection with the protection of New Hampshire

forests. It is pleasant to note the success that is attending his efforts. For a number of years he has taken a keen interest in this work, and has served as voluntary secretary of the finance committee for the Society for the Protection of New Hampshire Forests. During this time the society has been able to accomplish the following substantial pieces of work:—(1) The passage of the Weeks bill, through Congress at Washington, which appropriates \$11,000,000 for forest reserves in the White Mountains, and in the Southern Appalachians, six hundred and sixty thousand acres are within the boundaries laid out by the government in the White Mountains for purchase. One hundred and fifty thousand acres in the White Mountains have been carefully examined by government officers, a large portion of which will probably be acquired by the government prior to July 1, 1912; (2) The passage of the Crawford Notch bill by the State Legislature at Concord. The state is proceeding to purchase the Crawford Notch, notwithstanding a technical defect in the bill, due to careless engrossing. (3) The acquirement of 656 acres on the summit of Sunapee Mountain, contributed by residents around Sunapee Lake. This includes the three peaks of Sunapee and a lake of six acres near the summit of the mountain. (4) The purchase of the Lost River tract, west of North Woodstock. Contributions for this purchase were received from the hotel companies in the mountains and a large number of people in New Hampshire and Massachusetts, who coöperated to save the remaining timber around this remarkable spot. The future efforts of the society will be directed toward improvement of the several tracts acquired toward securing at the next session of the State Legislature material increase in the New Hampshire State Forest Reserve. The society desires to develop a local forestry association in every town in the state, and to persist in its efforts until every prominent mountain in New Hampshire is adequately protected. Anything Rollins takes hold of is sure to be a success.

1890

GEORGE L. GILMORE, *Sec.*, Lexington, Mass.

Frederick E. Harnden is now with the Ray Consolidated Copper Company with headquarters at Ray, Colo.—The address of Andrew W. Woodman is 1111 Hinman Avenue, Chicago, Ill.

STEPHEN W. MOORE

We have to record the death of Stephen W. Moore, who died last July. He had been in poor health for a number of years and spent a good share of his time in the West, but the past few years he has been in Newton, his home town, and was with us at our reunion in 1910.

1891.

HOWARD C. FORBES, *Sec.*, 88 Broad Street, Boston, Mass.

J. Linfield Damon, of the Hotel Thorndike, was elected president of the Hotel Managers' Mutual Benefit Association at their last annual meeting.—Ned Cunningham is now in Georgia, and after a short stay in the South plans to spend the winter in California. We wish him a healthful and happy time.—George Spooner is now with the Insurance Company of the state of Pennsylvania, at 308 Walnut Street, Philadelphia, where we wish him much success in his new position.—Howard C. Forbes has invented an indoor baseball game in which the contestants actually participate. He unfortunately caught a wild pitch on the bridge of his nose, breaking the latter. The ball was unable to cross this bridge even after coming to it. Forbes is doing well and we wish him a speedy recovery.—Alley is now traveling abroad for a few months and is expected to return in March or April.

1892.

W. SPENCER HUTCHINSON, *Sec.*, 1235 Morton Street, Mattapan, Mass.

W. A. JOHNSTON, *Ass't Sec.*, Mass. Inst. of Tech., Boston, Mass.

Leonard Metcalf reports having spent two months abroad in professional sightseeing during the summer, spending some time in Switzerland, Germany, France and England. He was especially interested in water works and sewage plants. At Dresden he was impressed with the Hygiene Exposition which was most noteworthy on account of its completeness. In spite of pressure of business, Metcalf finds time to do a little good work for the Institute, having acted as chairman of the alumni committee on Summer School in Civil Engineering and by addressing the Civil Engineering Society at the Union December 19, 1911.—F. J. Hoxie, special inspector and engineer, Factory Mutual Fire Insurance Company, who has made a study of the effects of fungous growth on the life and strength of timber used in mill construction, gave an interesting address to the Mechanical Engineering Society at the Institute.—P. P. Bourne, chief engineer of the George F. Blake Mfg. Co., has spent a considerable portion of the past year in travel, visiting the sugar beet fields of Colorado and Michigan, also the cane fields of Louisiana, Porto Rico and Cuba, with the object of introducing sugar pumping machinery into these places.—On account of the retirement of Professors Lanza and Schwamb from the department of mechanical engineering Fuller, Johnston and Park all have added responsibilities.

1893.

FREDERIC HAROLD FAY, *Sec.*, 60 City Hall, Boston, Mass.FREDERIC H. KEYES, *Asst. Sec.*, 88 Broad Street, Boston, Mass.

A. F. Bemis spent two or three weeks in England and Scotland on a business trip in November. While in London he saw something of Rigby Wason. Any '93 man who goes to London and fails to call on Wason misses a cordial reception and a good time. He told of having seen J. I. Solomon (better known as "Solly") a few months ago when he came to London to rest and recuperate. Solomon is still pursuing his profession or business of pearl culture, in which he has ingeniously made use of the X-ray, as pointed out in these columns some time ago. We should all be glad to see Wason in the House of Commons, knowing that he would make a mark for himself there, but he refuses to go into politics and is very happy and evidently prosperous, busily engaged as he is in the manufacture and sale of electric fixtures under the firm name of Perry & Co.—Congratulations are in order to Laurence B. Dixon upon the arrival recently of his first child, a son and heir, at his home in Riverside, Cal., where he owns and cultivates an orange grove. In honor of the event just recorded, we are now looking for a box of "Dixon's Best" as soon as the season arrives.

1894.

PROF. S. C. PRESCOTT, *Sec.*, Mass Inst. of Tech., Boston, Mass.

Among the recent visitors who have come to the Institute was Professor F. M. Mann, '94, who is now in charge of the department of architecture at the University of Illinois. After leaving the Institute, Mann was instructor in architecture and finally head of the department at the Washington University at St. Louis and from here was called to the University of Illinois two years ago. At Illinois he has a fine department and states that the outlook is excellent. His stay in Boston was extremely brief or the secretary would have tried to arrange a '94 luncheon for him.—Parker, who went to the University of Illinois for some special work in dairy bacteriology, has been appointed instructor for the current year in this subject and is carrying on a large amount of work in connection with the department of city milk supply.—Another recent visitor was F. C. Green, who spent a portion of the day at the Institute and whom we are always glad to see about the Institute buildings.—A large and interested audience of civil engineers and others interested in structural work was present at the City Club on Wednesday, December 13, to hear the paper before the Boston Society of Civil Engineers by McKibben on "The Failure of the Austin Dam." McKibben was appointed by the governor of Pennsylvania as an expert to investigate the acci-

dent which resulted in the destruction of the town of Austin and the loss of approximately one hundred lives. The paper was illustrated by slides from McKibben's own photographs in many instances and was extremely valuable from the engineering standpoint.—We take pleasure in announcing the birth of a third son to Mr. and Mrs. W. H. Sayward, Jr., John Mayhew Sayward, born December 5, 1911, another candidate for the class of 1933. Sayward has recently been very active in the dramatic line and has written a colonial play in three acts entitled, "In Good Old Colony Days" which has been published by Samuel French in New York. He has also written a one-act sketch which will probably be performed at the Toy Theatre in Boston sometime in February.

1896.

PROF. CHARLES E. LOCKE, *Sec.*, Mass. Inst. of Tech., Boston, Mass.

The secretary is sorry to say that the members of the class of '96 are very backward in supplying items. Several requests have been made and in some cases letters have been definitely promised but very few of the fellows seem to be patriotic enough to help the secretary out of his difficulty. Hultman spent the summer abroad with his wife on the Chamber of Commerce trip and has kindly supplied a little history of the trip as taken from Mrs. Hultman's diary. It is a source of pleasure to '96 men to see Hultman also honored by a place on the ballot for members of the Corporation and undoubtedly every '96 man gave him a good solid vote.—

The European trip taken by the Boston Chamber of Commerce party this summer was most varied in regard to the things seen and it is difficult to know what was of most interest. The trip was taken with a view to studying primarily municipal, civic and industrial features, but everywhere we went, attractive programs were arranged for our recreation as well.

The day of our arrival in Liverpool we visited Port Sunlight, one of the earliest examples of a garden city planned for the welfare of the working people. It is a very interesting town as Sir William Lever, the owner of the Sunlight Soap Manufactory, has built beautiful houses for his working people. The architecture is wonderfully good and varied. The houses are built in blocks of about four each and no two blocks are alike. They rent from eighty-seven and one-half cents a week for the smallest which consist of living room, kitchen, scullery, three bedrooms and bathroom, to ten dollars a month for the most expensive. This rent is not as small as it seems for the wages are much smaller than in America, the minimum for men being twenty-five dollars per month. The lots have been made deep and the houses placed on their outer fringes; the hollow spaces inside are let out for allotment gardens at a charge of sixpence per rod per annum. The front gardens are not cultivated by the villagers themselves, but by the firm and are set with shrubs and grass rather than flowers. The tenants are charged threepence per week for the upkeep of these gardens. Everything possible seems to have been done for the well-being and com-

fort of the inhabitants of Port Sunlight. There are swimming baths, gymnasiums, clubs for workmen and for girls, a library, theater, technical institute, schools, allotments, ambulance corps, mutual improvement, literary and scientific societies and other institutions for their physical and mental cultivation. It seemed to me that all over Europe there were many more opportunities for the poor to enjoy themselves than in America. For instance, in Brussels every evening in the square of the Hotel de Ville, one of the most famous and beautiful of medieval squares, there is a band concert where small tables with chairs around them are placed in the open square and here the poor people listen to the music and drink their beer at two cents a glass. There were thousands there and all seemed to enjoy the music as well as the beer. Everywhere people seem very fond of fine music.

From Dusseldorf we went out to Elberfeld and saw the famous hanging railway which is built between Elberfeld and Barmen over the river Wupper. This was constructed by placing a large number of steel supports on either side of the river with the upper ends joined together over it and the whole made firm with trellis-work, then on the top of this rails were placed. Along these rails wheels to which hanging cars are fixed, were made to run.

In Frankfurt we were given a reception and very fine banquet in the "Kaisersaal" of the "Romer" (Town Hall) by the "Handelskammer Frankfurt A. M." The "Kaisersaal" is the room where the Roman-German emperors were crowned from the time of Charlemagne to Francis II, and their portraits are all around the room. It is a magnificent room and they said it was the first time women had ever been in the room as invited guests.

In Hamburg the deep and broad Elbe permits ships up to twenty-eight feet draught of water to enter the docks of the town. These enormous docks accommodate nearly seven thousand ships at once. We visited the Vulcan Ship Works where the *Imperator*, a ship of fifty thousand tons, is being built.

At Hamburg we also saw the Zoological Park of Carl Hagenback. This remarkable man provides the entire world with wild and tame animals from the tenderest insect up to the greatest elephant. He has each animal in its own environment as nearly as possible, having rocks and caves built of cement.

In Vienna we visited the Municipal baths and it was the most remarkable sight of its kind I ever saw. They have the "Herrenbade," the "Damenbade," and the "Familienbade" which we visited. The women, whether fat or thin, handsome or homely, all wear the most abbreviated costume consisting of only a little jersey. They posed around the beach in the happiest, most unconscious manner and seldom went in the water. They have their "Restauration" where they have refreshments in their bathing costumes. Everywhere they have restaurants and beer gardens. One man was speaking of a famous cemetery where the people came to bring flowers for their dead and visit with one another at the same time. I asked him, in a facetious manner, if they had a beer garden in the cemetery and the man answered soberly, "No, it is just outside."

In Vienna we attended at least one magnificent banquet a day and in the brief notes I kept I mention returning from a banquet, having some water and retiring. It is difficult to believe that it is so unusual to serve water in Europe that one makes an event of drinking it.

While in Interlaken we took the Harder Funicular Railway which has a grade of 66 per cent. and went from Interlaken to Harderkulm, from there we had a mag-

nificent view of the Jungfrau, Mönch and Eiger and the lakes of Thun and Brienz. While on Harderkulm we had a heavy shower with clouds below us and also a rainbow below us lying along the ground, which was an unusual sight to see. The color of the Swiss lakes is marvelous. As we looked down on Thun its color was pure turquoise.

In Switzerland the most remarkable thing I saw was the Jungfrau Railway. We went from Interlaken to Lauterbrunnen where we changed to an electric train up the mountain. The scenery was magnificent with many lovely waterfalls. There are lovely little villages way up in the mountains. We went to Kleine Schiedegg where there is a large hotel, thence to Eiger Glacier and Eismeer station. Eismeer Station hewn from the rocks of the Eiger is undoubtedly not only the highest, but the most stupendous railway station in the world. Its four huge gallery windows open into the ice region back of Jungfrau, into the Grindelwald Ice Meer, Kallifirn and upon the Viescher Glacier, but particularly upon the indescribable ice cascades of the Mönchjoch. This view of the glacier world is one of the grandest natural wonders that Europe affords.

Items from Sears and Fuller were contributed voluntarily without request from the secretary, who hopes that for the next number the fellows will respond more heartily to requests for news.—Myron L. Fuller, for many years with the U. S. Geological Survey but more recently “cranberryologist” on Cape Cod, wasn’t able to keep away from geology and on January 1 will open an office in room 501, Board of Trade Building, State Street, Boston, for conducting all kinds of geological engineering investigations, especially along water-supply, dam foundation, and ore deposit lines. Associated with him will be one of his old students, Fred G. Clapp, ’01, of late years a consulting geological engineer at Pittsburgh. The firm will be known as the Bureau of Associated Geological Engineers. Fuller will be found at the Boston office while his partner will look out for the firm’s extensive work in the oil fields.—M. A. Sears, Course III, writes from camp at Idaho City, Idaho, as follows regarding work investigating mineral claims supposed to have been fraudulently filed on timber lands:

As you know I have been with the General Land Office nearly three years now and in many ways the work is very pleasant—only it keeps me away from home rather too much—on an average, I suppose, of about three weeks out of each month. My present assignment will keep me away, all told, about three months, however. I came here about the middle or latter part of September and do not expect to return home before the middle of December. A mineral inspector from the Utah division and myself have been assigned to the investigation of some seven thousand acres of land which has been filed upon by one set of claimants as placer land (gold and monazite) and by another set as timber land. The former claimants have alleged a net value on about eleven hundred acres of this ground of over \$600,000. As timber land the whole seven thousand acres is worth something like \$100,000. We have panned over one hundred samples so far and have, or will have in a few days, about two hundred more in bags ready to pan. These represent only about nineteen hundred acres, however. The balance of the ground cannot at present be exam-

ined so thoroughly, if at all, this season. We panned until ice began to form on the creek and then decided to collect the rest of our samples and take them all to the warm springs, to which place we are to go about the middle of the month. We already have about four tons of samples cached there under seal. We keep two men busy digging pits for us—I trust in a literal sense only—and they with the cook constitute our force. The latter, needless to say, is about the hardest worked man in the bunch. Most of my work with the General Land Office heretofore has been the examination of coal lands, and the present work, although much harder in many respects, comes as a relief, for it gives me a change and also new experience.

By the way, you probably know that Etheridge Walker is general manager of the Idaho-Boston Gold Dredging Company which is conducting extensive operations near Idaho City. One of his dredges (which is one of the largest in the world) very nearly captured the world's record for yardage during the month of September, having handled 319,000 cubic yards of material. It is a beautiful collection of gold-saving machinery and is well worth seeing. In talking with Walker the other day he pointed to an old dismantled dredge near the office and remarked that the big dredge just referred to handled more material in four months than the old boat did in five years. That speaks eloquently of progress, does it not?

You may know that I am in fine physical trim when I tell you that this effusion was preceded by a successful attempt on a ten days' growth of whiskers.

—Much local interest has been shown in a novel idea in connection with Christmas decoration, devised and carried out by L. S. Tyler, Course VI. The decoration appeared in the show window of the United Motor Boston Company "Maxwell" store, and consisted of a car with Santa Claus at the wheel; the balance of the car being loaded with Christmas presents, candy, a Christmas tree and all the decorations that go to make up the complete show. The presents (about 300 in all) were purchased for the occasion and on the Saturday before Christmas they were given to local charitable institutions to gladden the hearts of the youngsters. Tyler followed business of an engineering character for a few years after finishing at Tech, and in 1905, with his brother, entered the automobile business as New England agents for the Maxwell cars. Later, interests were pooled with the factory and a branch house formed, The United Motor Boston Company. Tyler is manager of the Maxwell Branch, assistant treasurer of the United Motor Boston Company, director in the Maxwell-Briscoe Trust and in the Charlesgate Garage. He is married, and the proud father of two children, a boy and a girl.

1897.

JOHN ARTHUR COLLINS, *Sec.*, 67 Thorndyke Street, Lawrence, Mass.

Atwood has gone to the department of Water Supply to work with Manahan, '92, on designs of new filters for Croton Water Supply, Park Row Building, 13-21 Park Row.—P. L. Dougherty

writes that he is no longer with the United States Treasury department, but is now connected with the Otis Elevator Company with headquarters in Boston. Before leaving the government employ, he served as a member of the commission appointed by President Taft, to report on economy and efficiency in the government departments. He advises us also that Proctor L. Dougherty, Jr., appeared on the scene August 1, 1911.—We learn from the same source that the University Club of Washington, D. C., is now building a \$200,000 club house to provide adequate quarters for its eight hundred resident members. This is of interest to Tech men because the club was organized through the efforts of the Washington Society of M. I. T.—News has come to the secretary indirectly of the marriage of H. D. Jackson. He is, by the way, a frequent contributor to the leading steam engineering magazine, *Power*.

1898.

ERNEST F. RUSS, *Sec.*, 70 High Street, Boston, Mass.

The first informal reunion of the class was held at the Boston City Club on the night of December 1. Fourteen members were present and a most enjoyable evening was spent. We were fortunate in having for an out-of-town member, R. R. Rumery, who came on from Albany. Rumery is engaged in the work of making physical estimates for the State Tax Commission of New York. Other members present were Coombs, Coburn, Wesson, Pease, S. K. Humphrey, Peavey, J. T. Robinson, Clarence Goldsmith, C. F. Wing, F. S. Tucker, E. R. Barker, Godfrey and Russ. W. F. Steffens has a record of sixty-four bridges renewed on the Boston & Albany Railroad in eighteen months, as well as the program at Worcester which included heavy masonry, retaining walls, arches, etc. Also design of reinforced concrete in the station. He states that bridges are replaced very rapidly on that road, the best record to date, being twenty-eight minutes from passage of the last train over the old bridge to the first train over the new bridge. The actual rolling time was only forty seconds for the steel work.—George W. Treat has just returned from Europe where he stayed for two months, visiting England, France, Italy, Switzerland, Austria Hungary, Germany, etc.—C. E. A. Winslow has been retained as an expert in the suit between the state of New York and New Jersey in regard to the projected Passaic Valley sewer. Also in the water pollution case at Auburn, N. Y.—P. H. Dater has just been appointed supervising engineer on the New York State Barge Canal. His headquarters will be in Albany, N. Y.—George E. Mathews has a son, born last July.—Gorham Phillips Stevens has been appointed director of the American Academy in Rome.—H. S. S. Philbrick is operating an electric power and irrigated land project at Clarkston, Wash.

His company furnishes power to eight towns* and cities.—C. J. Skinner is in charge of the terminal work at Wichita, Kans. They will spend about \$2,000,000 on track elevation, a new Union depot, and new terminals.—H. W. Jones is leaving Washington this month for his new station which is in New Orleans.—C. W. Pendell states that in Chicago he sees the boys regularly at Thursday lunches and alumni smokers.—R. E. Kendall has a boy, born in June.—A. H. Tew has a new address with the Carpenter-Tew Gear Company, 67 Thirty-fifth Street, Brooklyn, N. Y.—F. F. Colcord was another member of the class who spent last summer in Europe.—Miland V. Ayres has just accepted a position of chief engineer, Mobile Light & Railroad Co., Mobile, Ala.—W. W. Stevens is now with the Post Office department in the office of postmaster-general. His work is planning the equipment of post offices.—Dr. George H. Wright says he is "looking down in the mouth most of the time."—Durand Churchill is still associated with the Durand Steel Locker Company of New York and Chicago. He resides, however, at Point Loma, Cal., where he has headquarters and laboratory as consulting engineer.—W. D. Blackmer is in Mexico for an indefinite time. His present Los Angeles address is 731 Central Building.—E. A. Bragg has improved very much in health the past year.—E. F. Ayres is now assistant professor of civil engineering in charge of the highway department at Oregon Agricultural College.

It is with deep regret that we have to announce the death of Thomas Tuttle Wooster.

1899.

H. J. SKINNER, *Sec.*, 93 Broad Street, Boston, Mass.

Hermanns has been made head of the structural engineering department of the Stevens Institute of Technology, Hoboken, N. J.—Bonns was married October 25 to Miss Emily Belinda Cornish.—Snow has been in Boston recently, having completed an important piece of engineering work in Arizona where he had entire charge of the design and construction of the Ray Consolidated Concentrating Mill.—Sherrill has been granted a leave of absence from the Institute for six months in order to give a course of lectures on physical chemistry at the University of California, at Berkeley, Cal.—Corse, who is works manager of the Lumen Bearing Company was in Boston during November.—The following changes of addresses have been received: Timothy W. Hoxie, 59 Cedar Street, New York, N. Y.—William E. West, care of Steel & Radiation Lt., Craig Street, Montreal, Canada.—C. L. Morgan, 100 Mt. Vernon Street, Fitchburg, Mass.—Clifford M. Swan, 558 West 113th St., New York, N. Y.

1900

INGERSOLL BOWDITCH.

GEORGE C. GIBBS.

RICHARD WASTCOAT.

PERCY R. ZIEGLER.

N. J. NEALL, *Sec.*, 12 Pearl Street, Boston, Mass.

The decennial record of the class of 1900 was mailed to two hundred members of the class in October and all the replies which have been received have been very gratifying to the class committee. In one or two cases the book has been sent back by the members of the class with no comment, but as a general thing the dollar asked for has been paid and in several cases more money has been received. If anybody, reading the class book, notices that names have been omitted, the committee hopes that he will call this omission to its attention. Whoever has not received a class book may obtain one by sending one dollar or more to Ingersoll Bowditch, 28 State Street, Boston, Mass. The following changes should be made in the records as published in the class book: John R. Brownell calls himself a member of the class of 1901. Edward M. Davis should be Edward H. Davis. William R. Hurd should be addressed as William R. Hurd, 2d. Herbert C. Keay III. should be Herbert O. Keay II. Walter L. Rapp VI. should be Walter L. Rapp IV. William C. Saunders was left out of the book. W. L. Stevens was left out of the book. Mrs. Marion L. Woodman was not assistant to Professor Woodman. Under Ralph Hamlin, in the line beginning "Children" the name "Delioin" should be spelled "Delwin." Under Kenneth Seaver, the first line "Harvison" should be spelled "Harbison." Under Charles E. Smith, in the line beginning "Married" the name "Morley" should be "Mabry." Under Levi B. Jennings, after the word "Married" should be written "June 1, 1910, Clara Compton Girault, Chicago, Ill." The addresses of the following men, which the committee has, are evidently not correct. If anybody can supply them it will be greatly appreciated: Harry B. Chalmers, Francis Church Lincoln, Herbert M. McMaster, F. W. Witherell, Robert H. Clary, Warren W. Sanders. A great many of the men wrote letters concerning their doings and I am sure that the class will be interested to hear about them. H. C. Morris considers the book a start in the right direction and hopes to stir up some class spirit in New York. He was the only 1900 man at the annual dinner in New York last year and feels that the class ought to be ashamed of such a small representation. H. D. Jouett spent his vacation last September in the White Mountains. He regrets that more men did not send data for the class book.—P. H. Delano has finally been heard from officially. He is farming in North Plymouth.—H. O. Keay writes as follows, "As a whole, I think that the Record is a splendid piece of work and one which should command the hearty support of every man in the class. If there are any who feel dif-

ferently about this, a coroner's inquest should be held over them at once to determine just how dead they really are."—Fred Cooke is still working hard for Uncle Sam. He writes from the Norfolk Navy Yard, but does not expect to stay there much longer, and the navy department has not yet decided where he can do the most good. He promises to let the committee know when this question is settled. It is always a pleasure to hear from him.—L. W. Godfrey has bought a farm of twenty-four acres and is making a specialty of poultry. This is his first experience on a farm and he has had fine luck for the first year.—Oxnard writes that Weeks has gone to Houlton, Me., as principal of the Ricker Classical Institute, thus increasing Technology's representation in Aroostook County by 50 per cent. No alumni association has as yet been organized. Weeks announces the birth, on September 24, 1911, of Mary Elizabeth Weeks.—Cliff Leonard has very kindly offered to help the class committee in any way he can and was able to furnish the address of a man who had moved without letting the class committee know. It will be a great help if the men who change their addresses would just drop a post-card to N. J. Neall, 12 Pearl Street, Boston, Mass., giving the new address.—Ralph Hamlin has changed his position and is now chief engineer for Pike & Cook, general contractors, in Minneapolis.—Katelle is still in Washington turning out post office and other government buildings by the yard. The Boston men miss him at their meetings.—L. L. Cayvan writes that he has been made superintendent of the Grand Rapids (Michigan) plant of the National Biscuit Company. He also writes that Tom Perry has left the Board of Education in Grand Rapids and is now head of the dry kiln department of the Veneer Works. Cayvan considers that he is doing finely in making this change. He has seen Clinton Thurber who comes over from the Barracks, north of Chicago. He guesses, "Our lieutenant is building *some* Army Training School there."—Kenneth Seaver always gives interesting information when he writes. He tells us that Raymond Willey is working in the same company with him as district superintendent, having entire charge of nine or ten plants and if anything is wanted, Willey is the man who will deliver the goods.—Frank D. Chase thinks that the class committee should get out a book every five years and publish a newspaper every three or six months. While the committee is very glad to do what they can to help along the class spirit, to publish a book every five years is asking a little too much. If Chase will subscribe for the TECHNOLOGY REVIEW, he will get practically all the news about the class every three months as there is always a letter in it.—Albert S. Merrill is in the department of civil engineering of Lafayette College, Easton, Pa. He regrets that so little notice was taken of the members of the class who had died. The committee would have been glad to publish an account of these men if they had been able to obtain the necessary information. If any member of the

class has this information, please send it in.—A. C. Dart writes from Canon City, Col., that his permanent address is care of Henry Dart's Sons, Rock Island, Ill.—Philip R. French furnished the information that Harry Osgood's latest address is care of Joseph Bancroft's Sons Co., Wilmington, Del.—A. B. Briggs has left the employ of the Boston & Albany Railroad and is in business for himself at 141 Milk Street, Boston, Mass.—Owing to Gibbs taking up his residence in Oklahoma, he has resigned from the class committee. Nobody has as yet been chosen to take his place.—Ziegler had a very interesting exhibit at the Industrial Exhibition which was held in the Mechanics Building in October. He had eight cows who were milked by his patent milking machine every two or three hours and there was always a crowd around him when this was being done. From an advertising point of view, this exhibit was a great success.—In the class book, the address of Paul L. Price, 347 Fifth Avenue, New York, is evidently not correct. His residence, however, 53 State Street, East Orange, N. J., is correct.—On November 20, a class dinner was held at the Technology Club and the following men were present; Ziegler, Neall, Bowditch, Wentworth, Russell, Beekman, Brown, Lawley, Richardson, Emery, Warren, Remington, Walworth, Brigham, Scott, Corliss and Bugbee. Wentworth very kindly gave us a talk on his crude oil engine which he hopes to get out next spring. The class was very fortunate in having Wolcott Remington present. He is installing oil engines and has met with a good deal of success. He discussed with Wentworth several questions concerning oil engines, and made the evening a very interesting one. It is hoped that at the next class dinner more will be present as the men who attend find them very interesting and they encourage class spirit.

The following changes of addresses have been received by the class committee:—Frederic C. Ayres, 28 Ferry Avenue, West Detroit, Mich.—Charles Augustus Barton, Jr., care of John S. Metcalf Company, Limited, 54 St. Francois Xavier Street, Montreal, Canada.—Charles Calvin Briggs, Jr., White Salmon, Wash.—John Wesley Brown, 1601 Cohasset Avenue, Lakewood, Ohio.—Llewellyn Leopold Cayvan, 41 Kent Street, Grand Rapids, Mich.—Albert C. Dart, Box 542, Canon City, Col. Permanent address, care of Henry Dart's Sons, Rock Island, Ill.—Lucius W. Godfrey, Mozart, Bucks Company, Pa.—Ralph Hamlin, Chief Engineer, Pike & Cook, General Contractors, Minneapolis, Minn.—Frederick DuBois Ingalls, 502-3 Snow Building, Syracuse, N. Y.—Frederick D. Lawley, care of George Lawley & Son, Corporation, Neponset, Mass.—Albert Sidney Merrill, Department of Civil Engineering, Lafayette College, Easton, Pa.—Thomas Doane Perry, Head of Dry Kiln Department, Veneer Works, Grand Rapids, Mich.—Arville C. Redman, 16 Ayrault Street, Newport, R. I.—William C. Saunders, Chamber of Commerce Building, Portland, Ore.—W. L. Stevens, care of Braden Copper Company, Rancagna, Chili.—

Fred I. Tucker, 82 Edwards Street, Buffalo, N. Y.—Irving C. Weeks, Principal, Ricker Classical Institute, Houlton, Me.—L. Webster Wickes, 404-6 Grosse Building, Los Angeles, Cal.—Raymond Willey, District Superintendent, Harbison-Walker Company, Farmers' Bank Building, Pittsburgh, Pa.—Walter Scott, 4 Pleasant Street, Lawrence Mass.

The following changes of residence have been received: Cyrus Corliss, 32 March Avenue, West Roxbury, Mass.—Henry Vincent Hubbard, Church Green, Taunton, Mass.—Frederick DuBois Ingalls, 766 Ostrom Avenue, Syracuse, N. Y.—Henry D. Jouett, 208 West 184th Street, New York, N. Y.—Henry Curtis Morris, 201 West 81st Street, New York, N. Y., Hotel Lucerne.—Albert Sidney Merrill, 122 North 3d Street, Easton, Pa.

1901.

ROBERT L. WILLIAMS, *Sec.*, 154 Magazine Street, Cambridge, Mass.

Charles K. Flint is still with Westinghouse, Church, Kerr & Company of New York, where he has been ever since graduation.—S. Winthrop St. Clair worked as an architectural draughtsman for Peabody & Stearns until 1903. Then he went abroad for a year, visiting England, France, Switzerland, Italy, Spain and Germany. Upon his return he became associated with R. Clipton Sturgis, a Boston architect. This year he has been selected as architect for the town hall and Universalist Church of Winchester, N. H., also for the court house at Keene, N. H.—John F. McGann of the T. F. McGann & Sons' Co., manufacturers of architectural and sculptural bronze and brass, located in Boston, writes, "Have had much business from fellow-members and always try and do the same toward them when the opportunity presents itself." This certainly shows good class spirit and a ready way to help each other.—Edward L. Whalan is at present traveling abroad.—Charles E. Martin resides at Pencoyd, Pa., where he is a checker for the American Bridge Company.—F. W. Puckey since graduation has been architect for 150 buildings and superintended their erection. He is patron of Atelier Puckey of the Architectural Club of Chicago.—Charles A. Whittemore is head draftsman for C. H. Blackhall, architect, Boston.—The class was well represented in the Pittsburgh Technology Association for the season 1911-12, Warren I. Bickford being president, and Edward Seaver, Jr., a member of the executive committee.—Charles F. F. Campbell, secretary of the Pennsylvania Association for the Blind, has tendered his resignation to that institution and accepted the management of the Blind Association of the entire state of Ohio. He is now located at Columbus.—Charles Austin Mace covers the whole Middle West as a traveling salesman for the chemical specialties of the Badische Aniline and Soda Fabrik of Germany.—Stanley C. Sears,

as general manager of the Mexico Consolidated Mining and Smelting Co., at Durango, Mexico, has charge of a plant, mining, milling, concentrating and cyaniding silver-gold ore, averaging 120 tons per 24 hours.—Albert F. Sulzer is superintendent of the chemical plant Kodak Park Works of the Eastman Kodak Company. He superintends the manufacture of nitric, acetic and sulphuric acids; also cellulose nitrate, cellulose acetate, silver nitrate and the refining of silver.—The success of Fred G. Clapp, consulting geological engineer, especially in the Eastern oil and gas fields where he has taken an important part in the development of new territory, has been such as to lure him into broader fields, and he has recently formed an association with Myron L. Fuller, a former institute instructor and member of the class of '96, for conducting investigations of water supplies, bridge and dam foundations, ore deposits, and mineral properties of all kinds. The association, known as the Bureau of Associated Geologists, will maintain two offices, one in the Board of Trade Building, Boston, and the other at 331 Fourth Avenue, Pittsburgh. Mr. Clapp will be located at the latter city, as at present.

The following recent changes in addresses have been received:—Stuart B. Miller, 903 Jefferson Street, Wilmington, Del.—D. F. Haley, Box 28, Basin, Mont.—Huse T. Blanchard, 15 West 38th Street, New York, N.Y.—W. T. Aldrich, 8 Beacon Street, Boston.—S. L. Wonson, 809 Missouri Pacific Building, St. Louis, Mo.—Frank B. Walker, 65 South 11th Street, Minneapolis, Minn.—Solon J. Stone, Lackawanna Bridge Company, 2 Rector Street, New York, N. Y.—Alfred C. Jennings, 60 Vauxhall Street, New London, Conn.

1902.

F. H. HUNTER, *Sec.*, 281 Park Street, West Roxbury, Mass.

The first gathering of the class, for the season, took place at the Technology Club, Boston, on the evening of November 22. The attendance at the dinner was less than usual, but those unable to be there missed a most enjoyable evening. Mr. Ellis Spear, Jr., Bowdoin, '98, was the guest of the class and after the dinner gave an interesting talk upon his experiences as a patent examiner and subsequently as a patent attorney. Afterward there was a general discussion of patent law and affairs which took the form of an "experience meeting"—several of the members having tried their luck in the patent field. There was also discussion of the plans for class activities during the winter, and the prospects for the decennial record book and the decennial reunion to be held next June. The new site for Technology and the plans and prospects for the future Institute came in for comment. The gathering broke up with the Stein Song, at about ten-thirty. Those present were Ames, Collier, Finneran, Fitch, Hall, Hunter, Mahar, Manley,

Millar, Moore, Pendergast, Joe Philbrick, Robinson, Shedd, Teague and Rob. Whitney; Stillings, who was prevented by a press of work from coming to the dinner, dropped in to shake hands all around before the evening was over. At the dinner, it was voted to send a message of sympathy and best wishes for a speedy recovery to Wemyss, who has been obliged to give up work on account of lung trouble and is at Phoenix, Ariz. The last word from "Dunc" is of a good improvement resulting from the change in climate, and all his classmates will join in hoping that he may soon be completely restored to health. Mullaly was also absent from the dinner on account of his health. He is at South Orrington, Me., recuperating from a nervous breakdown, but is expected back in Boston before long.—"Doc" Williams' name is now added to our list of proud and happy fathers,—Robert Downes Williams having arrived on November 23.—Marvin was married on December 20 to Miss Grace W. Field of Denver, Col., the culmination of an acquaintance formed while Miss Field was studying vocal music at the New England Conservatory. Marvin and his bride will make their home in St. Paul, Minn., where Jack will be located, after New Year's, with the Western Electric Company.—In the last REVIEW mention was made of the Hingham Memorial Tower, the design of which was made by Roger Greeley. Another '02 man has had a hand in this interesting work, as the tower is being erected by the George A. Fuller Company and Adrian Sawyer has charge of the construction. Sawyer has another interesting piece of building work in his care,—the addition to the South Station, Boston, where several stories are to be added to the present low part of the Summer Street front. Some very large girders have to be placed, spanning from wall to wall, without disturbing the operations of the rooms below.—Charlie Mixter sends in 17 Exeter Street, Boston, as his address.—Trowbridge has moved to 146 Jewett Street, Newton, Mass.—Gifford is living at 29 Hawthorne Street, Lynn, Mass.—At the time of writing, work is going forward for the Decennial record of the class, and circulars and reply blanks should reach all classmates quite as soon as this issue of the REVIEW does. If your blank doesn't reach you by February 1 something is wrong,—*get after the secretary!* A prompt reply from all hands on receipt of the papers will greatly assist in compiling the book.

EDWARD W. HADCOCK.

News has come to the secretary of the death, in October, of Edward W. Hadcock, who has been for some years an assistant engineer with the Harbor and Land Commission of Massachusetts. While of a modest and quiet nature Hadcock was always a loyal classmate, and his early death will be regretted by all who knew him. A more extended notice of his life will appear in the next class record.

1903.

F. A. OLMSTEAD, *Sec.*, Oregon City, Ore.
R. H. NUTTER, *Asst. Sec.*, Lynn, Mass.

In response to a request for news the following very interesting letter was received from W. H. Adams, professor of mechanical engineering at the Imperial Pei-Yang University, Tientsin, China.

I have now been here in the university for over three years and expect to remain a little over two years more. I will miss the ten-year reunion of the class but hope to reach Boston in time for the next grand reunion and possibly I may stand the chance of getting the long distance prize if there is one. Life in the Orient appeals to me and I would like to stay out here if I could arrange to get home once in a while. Unfortunately our university makes no provision for leave of absence so I will have to leave for good when I take my vacation.

I suppose you will wonder why such a life appeals to me, as it takes me so far away from home and friends. I do not like that one phase of the life, that it does take one away from home. As for friends one makes new ones and the old ones at home soon forget one. (My list of correspondents at home is small.)

The life here is quite different from any that a person in the Northern States is accustomed to. Possibly it may be familiar to people from the South. In the first place there is none of the "strenuous life" that we have in U. S. A. If a thing can't be done today—leave it until tomorrow. I find much more social life here—due to having more time to devote to such things. Servants are plentiful and do not cost much. I have seven in my household and I pay the entire lot a total of \$28 gold every month and am not expected to feed or cloth them. (Incidentally they wear more clothing than the Filipino.) Their efficiency is low and the entire lot do no more work, than two good maids at home.

My work is interesting and I find the Chinese good hard students. As a rule they lack initiative and will not make good leaders. Under good leaders our students will make good engineers for China. Of course, there are exceptions and some of our men will hold their own with men in America. I have had a chance to travel and see considerable of the East. I have spent one summer in Japan, one in Korea and this last summer I went up to the edge of the Mongolian Desert. This coming summer I hope to go into the desert for a six-weeks trip or else take a trip south with a run over to Manila. I am accumulating a large stock of photographs, some of which I am going to make up into lantern slides.

The actual life of the Chinese in the north of China is entirely different from that you see in Boston's Chinatown. All those Chinese come from a small district around Canton and cannot even talk the official Chinese language.

It is hard for the average person at home to realize that China is a large country. I receive letters telling of people from U. S. A. going to Shanghai or up the Yangtze River and am requested to look them up. It is the same proposition that you would be up against if I wrote you that a friend of mine was going to Chicago and asked you to drop in and make him a call. Shanghai is four days away by boat and cannot be reached by rail from Tientsin. The country around here is flat and not more than fifteen to twenty feet above sea level. When the rivers are high we have to build dikes to keep out the water. The rivers are generally liquid

mud of a dirty yellow color. Incidentally, that is all we have to drink, but it is first purified by filtering and boiling. This country extends for fifty miles back from the sea when it becomes hilly and finally mountainous. The native houses are made of brick for the better class and are one story high usually. The cheaper houses are made of straw which is plastered with mud outside and inside. These usually have only one room. The furniture in these straw houses is very primitive, consisting of a brick bed made hollow and occupying one half of the room. In the winter, when the thermometer reaches zero F., a small fire is made inside of the bed and the entire family sleep on the top. This is very conducive to the breeding of vermin and a foreigner never sleeps on one of these beds if there is any way of preventing it. We have a foreign house and always eat foreign food. The dress of the poorer class of Chinese is very interesting. In the summer it consists of a pair of trousers and a shirt for both men and women. Sometimes the men do away with these if it interferes with their work. As the cooler weather comes they draw on an extra pair of trousers. These trousers consist of legs only and are fastened to the belt with strings. The rear part of the anatomy has no extra protection. When it gets still colder they add garments of cotton cloth, padded with cotton. Finally in the coldest weather they will have six or eight garments, all padded, so that they look like small elephants. The well-to-do people use a large number of garments, but they are made of fur and are not so clumsy.

The usual mode of traveling in the large cities near the coast is in jinrikishas while in the interior springless carts, donkeys and sedan chairs are used.

—The class offers its congratulations to Frank G. Cox on his "escape" Frank writes as follows:

It may interest you and the other fellows of the class to know that October 14 saw me escape from the bachelor ranks with the assistance of Miss Anna Sellers of Wilmington, Del. We are now living in Dallas, Texas, and shall be very much pleased to see any of the fellows, should they come to Dallas.

1904.

EVERETT O. HILLER, *Sec.*, United Printing Machinery Co.,
Jamaica Plain, Mass.

ADDISON F. HOLMES, *Asst. Sec.*, 7 Holborn Street, Roxbury, Mass.

Currier Lang writes from The Solvay Process Company, Detroit, Mich.:

I came here to Detroit in 1906 to work on the construction of the Detroit River tunnel of the Michigan Central Railroad. I went to work as the first inspector in the field and during the next two years filled positions of inspector, chief inspector and division engineer. In 1908 I left the tunnel work because it did not look as though there would be much more new experience to be gained, because the organization had taken such permanent shape that I didn't think there was much chance of further promotion, and because I thought the salary limit had been about reached. The tunnel work was very interesting and I will always be glad of the fine experience that I got there, but it was sloppy and disagreeable at times. I used to wallow around in clothes plastered with mud until I was afraid my nose would turn into a

snout. Since leaving the tunnel I have been with The Solvay Process Company, makers of soda, most of the time as civil engineer. It may seem to you that the position of civil engineer of a chemical works is perhaps honorable but not very useful, but I find that there is plenty to do. This plant is so large, is growing so fast and has such extensive systems of underground piping, railroad tracks, docks, quarries, etc., that a civil engineer's office has been maintained for many years for handling this kind of work. Outside of business, I am also very pleasantly situated. Detroit has a fine reputation as a good city to live in and I find that it comes up to its reputation. Its location on the Detroit River is a great asset and the people make good use of the river and the country round about for recreation purposes. I belong to two or three clubs, including the University Club. At the latter I met a number of Tech men, but 1904 men are scarce in this part of the country. In the University Club, Tech ranks fifth in membership, I believe. A little over a year ago I was married, and since that time have been much occupied with the mysteries and delights of housekeeping and home-making. I used to think I was fortunate in having many friends; but since I have been married I have made so many new ones on my wife's account and, in fact, have observed that the old friends are now bound to us so much stronger than before, that I sometimes wonder how I made any friends when I was single and unaided. I have been much pleased at everything I have heard from Tech lately—pleased at the way the REVIEW is run, pleased at the way the site question has been handled and solved, and pleased at the general pull-together feeling that is evident everywhere among the alumni. We can all be very proud of everything Tech has done for many years back and I am sure we will be prouder than ever when the old school gets set up in its new location. In view of the scarcity of 1904 men in this vicinity,—Guy Hill and Preston Smith being the only ones beside myself—I hope any of the other fellows who are traveling this way will stop off and see me. We have a spare bed up at the house that is there for just such people.

I shall plan to be in Boston for the next five-year reunion and I hope you will begin early to urge the other fellows to come.

—"Dave" Elwell writes as follows from New Rochelle, N. Y., after explaining a delay in answering a letter from the secretary:

I have always been an advocate of the principle of "work a half hour longer when you would like to go home at five" theory and never leave till tomorrow what can be done today, but if I did "today" everything that could be done I wouldn't have any time to sleep nights, so in cases of this kind I "cut it out" and beat it to bed when maybe I would meet my obligations but lose some sleep by staying up and writing. Life has lapsed into a commonplace but very enjoyable existence for me. After about two years at the Westinghouse Works at East Pittsburgh, I worked for two years more with the Railway Construction Department on the New Haven Railroad Electrification, and since then, up to the present moment, in the New York sales office of the Westinghouse Company. My principal diversions are bridge, poker and motoring. Being very busy, though, my only time for riding is Sunday. When I go to church Sunday morning I generally spend the rest of the day working on the machine, and when I don't go to church I work in the forenoon and with my wife ride in the afternoon. Verily, one works hard for ones fun when one runs a machine.

—The following from Langley will be appreciated by his many friends in '04. His address is care of W. C. Langley Furniture Company, 144-148 South Main Street, Waterbury, Conn.:

You say you want my life history since leaving M. I. T. Of course you don't mean all the history. But here goes for a little fling at my doings since 1904. I went to Chicago as engineer for the Chicago Postal Pneumatic Tube Company, which company is a part of the Boston concern handling Uncle Sam's mail underground by compressed air. About nineteen miles was installed in Chicago, which handled the first-class mail between the railroad stations and the post offices. I was one of seven engineers the company employed in Chicago. There were many changes and shifts until after six or seven months I managed to land as assistant superintendent, my duties being to keep the mail moving and the machines for handling the same in first-class condition. I remained about a year, and then left to come to Waterbury, Conn., to go into the furniture business with my father, where I am still located. "Mert" Emerson can give you all the pneumatic tube talk you want, so I'll pass that along to him. Eighteen months ago I was married to Margaret Speers of Newport, R. I. Other than to say I'm trying to swap furniture for money my story is done. Oh, yes, "Mark" (W. S.) Anthony of New Bedford is married and is farming it, living in the same house in which his great-grandfather was born. So you see "Mark" has really gone back to nature. If you could visit him and see him as I did last summer, you would throw up whatever you are doing and say, "The simple life for me, too."

—We have the following from "Peacham" Paine who, though graduated in 1905, counts himself a loyal '04 man:

Have led an uneventful life since leaving Tech, rambling over the west for the larger portion of the time in the work of developing geological evidence for the United States General Land Office in the land fraud investigations. Two years ago I resigned, to drop down here in the desert oil fields of California and was married on Christmas Day, 1910, to Miss Olive E. Newman of Los Angeles, whose brother is Rolf Newman, '03. His address is care of Honolulu Consolidated Oil Company, 268 Market Street, San Francisco, Cal.

—The following is from William H. Eager, Whitman & Barnes Manufacturing Co., Akron, Ohio:

Yours of the 4th is received and I plead guilty to taking the "easy course." As penance I am foregoing the pleasure of slippers and a comfortable fire this evening to send you a line. Every time the REVIEW comes in I look for our class letter and always admit that we are all of us mighty careless about letting each other know what we are doing.

Relative to me and mine, I am nearing the end of my sixth year with this company and next will be my fourth summer here where our headquarters are located. This is a mighty busy city with all kinds of wealth and opportunity. A recent issue of a financial paper said there were only two towns in the country really busy, Detroit and Akron. Throughout all this period of dull times we have kept our plants going full and in some departments night and day.

This summer Mrs. Eager and I motored from here over to Long Island where we spent a couple of weeks among the Hamptons, enjoying to the limit the first

real vacation since joining this company. We ferried across the sound to Bridgeport and came back through Connecticut, Massachusetts, New York, etc., including that wonderfully delightful Berkshire country. We were gone a little over a month and both gained pounds. The winter season is again on and winters in Akron are bad. It doesn't get very cold as a rule, but we have a good deal of grey weather and rain. Just now it's both. Lyman Bourne is here in the rubber business. We have a number of Tech men here, fifteen or twenty in all, but he is my only classmate. We have an informal organization meeting around at the various fellows' houses from time to time. Occasionally we go up to meet with the Cleveland Club, but they are such a slow-going bunch we generally prefer to stay by ourselves.

—The secretary wishes to announce his marriage on December 21 to Miss Pearl A. Hilliard. He will be at home after January fifteenth at 67 Dunster Road, Jamaica Plain, Mass.—Short letters have been received from E. H. Russel, Jr., West Haven, Conn., who says in part, "I have changed my position and am now manager in the New England States for Bell & Bogart, Soap Manufacturers, New York City. It's a much better position than I have had and I am well pleased," and from Joe Keenan in his typical style and headed 86 Lafayette Avenue, Brooklyn, N. Y.:

There is really not much to say about myself, as you know I am merely a slave trying to drive the principles of mechanical drawing into about 200 steel skulls, five days out of the week. Have been teaching one year in Boston, three in Kansas City, one in Springfield, Mass., and am now finishing my second in the big burg and, believe me, like it very much.

—He goes on to state that his prospects are for continued teaching in the New York high schools.

We have the sad news of the death of William Stickney, a special with '04, who passed away late in November.

The following changes of addresses have come to hand: George M. Bates, corner 15th Avenue and 12th Street, Great Falls, Mont.—Harry H. Cerf, Y. M. C. A. Building, Duluth, Minn.—Harry F. Stix, 410 Olive Street, St. Louis, Mo.—Ralph B. Williams, Minas Tecolotes y Anexa, Santa Barbara, Chihuahua, Mexico.—Herbert W. Goddard, care of R. H. Howes Construction Company, 105 West 40th Street, New York City.

1905.

GROSVENOR D'W. MARCY, Sec., 246 Summer Street, Boston, Mass.

Miss Louise Antoinette Hawkes was born November 2. Her proud father, Charles W., who conducts the engineering department of the *Wool-Cotton Reporter* reports that everything is going finely.—George C. Thomas announces the birth of a son, Carlyle Wheeler, on December 8.—Miss Marion Winnifred Best and Bertrand Le Roy Johnson were married on December 14,

and will be at home after the 1st of February at Washington, D. C.—A card from Carlton E. Atwood, Casilla 704, Iquique, Chile, S. A., reads as follows:—"I returned to Boston on April 16, 1911, for a vacation; the first for five years, during which time I hadn't seen the States. I married Miss Clara J. Copeland, of Cambridge, on July 1. We sailed on August 19 from New York for Antofagasta, for another period in South America. I am still with the South America West Coast representative of the Westinghouse Companies, Mr. J. K. Robinson and am doing sales and construction work."—A note from Bill Spalding says he saw Rome in five days and Florence in two days, was then in Milan, and still had some money left.

1906.

RALPH R. PATCH, *Sec.*, 15 Lincoln Street, Stoneham, Mass.

Raymond J. Barber spent his first year after leaving the Institute in practical mining work in the United States and Mexico. He then switched to the electrical business which occupied the next three years. Now he has returned to mining work, being the junior member of the firm of Thomas & Barber, consulting mining engineers, Laughlin Building, Los Angeles, Cal. Barber is married and has one son.—A daughter, Charlotte Cassin, was born at San Antonio, Texas, October 5, 1911, to Mr. and Mrs. Terrell Bartlett. Bartlett is setting the pace for the 1906 boys in San Antonio who join him in sending greetings. Farwell, Friend, Ranney and Simpson are in San Antonio.—Sidney L. Davis is located in Wheeling, West Va., not with the Corn Exchange Bank, Broadway, N. Y., as reported in July REVIEW. The above bank address is the permanent address through which to reach Davis.—S. B. Eagan is married and has one child. He writes that in August, 1906, he entered the automobile business. In November, 1907, he started on a trip which took him to Egypt, Palestine, Turkey, Greece, Italy, France, Switzerland, Germany, Austria, Holland and England. In January, 1909, he entered the hotel business as president of the Hotel Broezel Company of Buffalo, N. Y. Eagan married Miss Lidivina Lang of Buffalo, January, 1910. He is still operating Hotel Broezel.—Ralph Hayden is now at 501 West 5th Street, Anaconda, Mont., is married and has one child. He was assistant to Professor Hofman, September, 1906, to January, 1907, going then to the Anaconda Mining Company as assistant testing engineer. After serving in this capacity a year and a half he became assistant superintendent of concentration.—Jimmy Root is also at Anaconda where they are handling 10,000 tons of copper ore per day. Henry Willard Hiss may be found at 962 Anderson Avenue, New York City. He has one son.—W. A. Hopkins, 1016 Old South Building, Boston, writes:

I have lived in mining camps at Colorado, California and Nevada most of the time since leaving Tech. Resigned as assistant manager of the Quartette Mining Company at Searchlight, Nevada, last spring to look after more general business interests. I am still keeping in touch with mining by occasionally making examination trips to properties for various companies and individuals.

—H. S. Hubbell is still at Ashburnham, Mass.—F. R. Ingalsbe writes from Missoula, Mont. He was instructor in geology, Lehigh University, South Bethlehem, Pa., from 1906–1908, assistant professor of geology at Lehigh, 1908–1911. In the summer of 1907 he was field geologist with Cleveland Cliffs Iron Company; 1910 to August, 1911, geological engineer with Bethlehem Steel Company; since August, 1911, mineral examiner with the Forest Service, Department of Agriculture. Address, care of Forestry Service, Missoula, Mont.—Bill Neilson went to Nevada and spent three years in a mining camp there. He leased a property, made some money, then put most of it back, looking for more ore. Bill left Nevada in the spring of 1910, disgusted with the mining game and located in Portland, Ore. in the general practice of civil and mining engineering. He purchased an apple orchard in the famous Hood River district where they made real money, expecting that the orchard will support more mining ventures. He is married, but has no offspring.—J. R. O'Hara, Jr's., address is Birmingham, Ala., where he is manager of the branch office of the Sullivan Machinery Company. Before going with the Sullivan Company he spent part of a year with the Edison Company.—Guy H. Ruggles, after spending two years with the Boston & Montana Company at Great Falls, Mont., located for three years with Ray Consolidated Copper Company at Kelvin, Ray and Hayden, Ariz. At present he is with the United Zinc & Chemical Co., Argentine, Kan.—W. A. Sheldon has spent five years in straight engineering work, both underground and surface. The last two years he has been with the A. S. & R. Co. Just now he is on a two months' job for the company at Asientos, Mexico.—Tom Webber's temporary address is 91 Pinckney Street, Boston. Webber is now married, but at the time of going to press the details of the wedding were not public.—Arthur E. Wells has been at the Garfield Smelter, Garfield, Utah, ever since leaving Tech, with the American Smelting & Refining Co. as chemist, both in operating and research work. He spent two and one half years on the smoke problem at the Garfield Smelter.—Clifford Wilfley is now manager of the Barston Mine, Ouray, Colo. Before going to Ouray he served as assistant in mine valuation at Cripple Creek, also as engineer and mill superintendent at Hostotipaquillo, Jalisco, Mexico.—H. L. Williams is at Cusihiuriachic, Chih, Mexico. I hope "Wee" can pronounce this name of his abode. He has moved about quite a little in the last five years, but is too busy just now to write about his doings.—Ira V. Woodbury has been

making shoes ever since leaving Tech, and is now a member of the firm with which he has been connected. He has two children, a boy and a girl. His address is Swampscott, Mass.

1907.

BRYANT NICHOLS, *Sec.*, 143 Garland Street, Everett, Mass.
HAROLD S. WONSON, *Asst. Sec.*, 149 East Main Street, Gloucester, Mass.

I. A Word from the Secretaries

Sometime during the last two weeks in December, 1911, every '07 man whose name is on our mailing list has received a letter telling of reunion plans and asking for a reply, and also a bill for class dues. As a message to the members of '07, let us urge you to reply to the letter and give the class your financial aid at once if you have not already attended to this matter. As a message to the other classes, we would say that in the coming June the class of 1907 celebrates the fifth anniversary of its graduation from the Institute. Plans are under way for a grand week-end jollification. The honorary member of the class, Bursar Rand, has offered the use of his farm in the town of Bellingham, Mass., for us to use as our camping ground for four days—Friday, Saturday, Sunday and Monday, June 14, 15, 16 and 17. His most generous offer, which was made at an informal dinner of the Boston bunch held at the Technology Club on November 10, was at that time most heartily and gratefully accepted. A committee of the class consisting of Macomber, Nichols, Wonson, Lawrence Allen and Robbins, has charge of the affair, and has already made plans in a general way for all the necessary arrangements for accommodations regarding shelter and food, etc. The dinner mentioned above was a success from the standpoint of enthusiasm and good fellowship, but rather a failure as far as attendance was concerned. While twenty-eight men had written to the secretary saying that they fully expected to come, only nineteen men showed up, with the result that it was necessary to draw on the class treasury in order to pay for the guaranteed number of dinners. It is very important that in a matter of this kind the fellows should be on hand when they have signified their intention of so doing. The following men were present:—Bob Thayer, Harry Moody, H. D. Reed, P. B. Walker, Don Robbins, George Norton, Ralph Crosby, Oscar Starkweather, H. B. Hosmer, Lawrence Allen, H. S. Wilkins, W. F. Kimball, Ralph Hudson, Karl Richards, Walter Bigelow, Gilbert Small, Harold Wonson, P. R. Nichols, and the secretary. Also Mr. Rand and Mr. Litchfield, '85, were on deck, and in an informal way told those present about the new site and the civil engineering summer school location, and also about the various undergraduate activities.

II. Notes Regarding some of our Members

Bob Albro's address is now Gresley Apartments, Chestnut Street, Manchester, N. H.—Lawrence Allen is living at 67 Webster Street, West Newton, Mass.—J. P. Hinckley is now located in New York City, his address being 231 West 39th Street.—On November 8, 1911, Tom Keeling was married to Miss Bessie L. Sperry of Nashville, Tenn. Their home will be in Baton Rouge, La., where Tom has been transferred with the Baton Rouge Electric Company, a Stone & Webster organization.—W. F. Kimball, Hotel Wadsworth, Boston, Mass.—R. W. Lindsay, 410 Bird Avenue, Buffalo, N. Y.—“Stud” Leavell resigned from his position in Cobalt last June, and his address is now Fifth East Hotel, Salt Lake City, Utah.—W. H. Martin is with the Power Construction Company, Shelbourne Falls, Mass.—Harry Moody's address is now 48 Bowdoin Avenue, Dorchester, Mass.—George Norton has been transferred to the Watertown Arsenal, Mass.—O. L. Peabody can be reached at 65 Winslow Street, Norwood, Mass.—Write to Robert Rand at 683 Atlantic Avenue, Boston, Mass.—Arthur T. Remick, 103 Park Avenue, New York City.—K. W. Richards, 683 Atlantic Ave., Boston, Mass.—V. S. Rood has been made superintendent of the Utah Apex Company at Bingham, Utah.—F. B. Schmidt has gone to Chicago, and should be addressed at 1400 East 53d Street, that city.—R. K. Taylor has moved to 8 Ashford Street, Allston, Mass.—J. J. Thomas is at the Sandy Hook Proving Grounds, Fort Hancock, N. J.—P. B. Walker should be addressed, Box 505, Needham, Mass.

1908

JOHN T. TOBIN, *Sec.*, care F. F. Harrington, Bridge Engineer, Virginian Railway Company, Norfolk, Va..
 RUDOLPH B. WEILER, *Asst. Sec.*, care The Sharples Separator Company, West Chester, Pa.

I. On the Part of the Assistant Secretary

The eleventh bi-monthly class dinner was held at the Boston City Club on Tuesday, November 14, 1911, at 6.30. Twenty-six members were present as follows: L. H. Allen, R. J. Batchelder, R. E. Beck, E. J. Beede, C. H. Boylston, C. A. Brown, B. W. Cary, H. S. Chandler, C. W. Clark, L. Coffin, A. M. Cook, W. F. Dolke, L. B. Ellis, A. Emerson, Alexander Ellis, Jr., F. L. Franks, H. W. French, W. D. Ford, H. T. Gerrish, Sherwood Hall, Jr., A. W. Heath, C. F. Joy, Jr., S. C. Lyon, O. S. Lyon, M. P. Meade, C. W. Whitmore. Considerable complaint was made that all do not receive notices of these dinners. We are inclined to the belief that the trouble lies mostly with the members themselves, who fail to notify the assistant secretary or the alumni office of a change in address. Only a few days ago A. C. Morrill, '07, of the Imperial

Pei-Yang University, Tientsin, China, furnished us with the address of a member whose address we had lost, due to that member's failure to notify us of the change he had made. All new addresses received by the assistant secretary are at once communicated to the alumni office, usually on the day received, and the alumni office mails all the notices. While no claim is made that the office is infallible, our four years' experience with them shows that the percentage of errors they make is quite small.—On the evening of November 25 your assistant secretary was roused out of bed by the ringing of the telephone "in the dead of night" (9.15—9 o'clock is roosting time in this town) and found Ed Smith at the other end of the line. He had come to town for a few hours on business. After he came down to the house we spent the rest of the evening—and part of the morning, also—in talking over old times. We will omit stating at what hour we parted company as this paragraph might be read by some West Chesterite. It certainly was a pleasure to meet a Tech man here, especially a classmate.

II. *Matrimonial*

George C. Lees was married on October 30 to Miss Bertha P. Butler at New Bedford, Mass.

III. *New Addresses*

R. C. Albro, Gresley Apartments, Manchester, N. H.—Edward E. Allen, 701 Lucas Avenue, St. Louis, Mo.—Ralph J. Batchelder, 11 Everett Street, Cambridge, Mass.—H. H. Bentley, 829 Montrose Boulevard, Chicago, Ill.—Victor J. Blackwell, 54 Bank of Toronto Building, London, Ont., Canada.—John C. Brooks, St. George's Inn, Wallingford, Conn.—Burton W. Cary, care Phillips Van Everen & Fish, 53 State Street, Boston, Mass.—Harry S. Chandler, 45 Jaques Street, Somerville, Mass.—Chalmers S. Clapp, care Mr. Schweinfurt, 35 Congress Street, Boston, Mass.—Prof. Harry Cross, Brown University, Providence, R. I.—Allston Dana, 714 West 1st Street, Elmira, N. Y.—Arthur S. Douglas, Sadkin River Power Company, North Carolina—R. E. Drake, 729 Boylston Street, Boston, Mass.—H. R. Draper, Box 476, Ayer, Mass.—F. C. Elder, American Steel & Wire Co., Worcester, Mass.—Albert G. Emery, 56 Francis Street, Roxbury, Mass.—Frank E. Goodnow, Dover, N. H.—L. B. Hedge, Box 155, East Ely, Nevada.—J. McGowan, 3420 Race Street, Philadelphia, Pa.—Miss Ruth Maxwell, 2008 Calumet Avenue, Chicago, Ill.—E. H. Newhall, 121 Liberty Road, Somerville, Mass.—Charlton D. Putnam, 53 Middlesex Avenue, Reading, Mass.—Willard E. Rockwell, 131 Wilmington Avenue, Dorchester, Mass.—Edward M. Savage, 3706 Grand Boulevard, Chicago, Ill.—E. J. Scott, 45 Lincoln Street, Winchester, Mass.—Walter C. Spencer, 1739 Euclid Avenue, Berkeley, Cal.—J. B. Stewart, Jr., Superintendent, Elmira, Corning & Waverly Railway, Elmira, N. Y.—Masanao Yendo, Katabira-Koji, Morioka Iwote-Ken, Japan.

1909.

CARL W. GRAM, Sec., care Walter Baker & Co., Ltd., Milton, Mass.

A class letter is in process of construction and will probably be in the hands of the class about the same time as this issue of the REVIEW. Among other things we wish particularly to find out those who wish to remain in our card files. And that means, not only that the secretary has a card labeled with your name, but also, that he should have your latest address and occupation, and should receive a card from you, at least once every six months, telling of the particular doings in your corner of the universe. So if you receive the 1909 class letter, please reply stating whether you wish to be a dead one—or belong to 1909; and if you're a live one, and don't receive a notice—holler!—

Harry Haven has been spending the summer knocking around Europe, and was reported due in Boston, but we have not seen him as yet.—Stewart Pierce made a flying trip this way about November 1, but as he was here only a couple of days, very few of us had a look at him, and he is now back at Tulsa, Okla., again.—Walt King is still in the basement of Walker Building. Awfully convenient, but he's terribly envious of Jack Elbert over in Germany. Through Walt comes the news of Harwood Frost's engagement to Miss Evelyn Crosby of Summit, N. Y.—Aldrich Blake is managing Wilson's Democratic campaign in Michigan.—Keyes Gaynor was married on November 2 to Miss Beatrice Barclay of Des Moines. They are now living in Sioux City where Keyes is city engineer. A recent number of the *Engineering Record* reported the completion of a new sewer system in Sioux City planned and constructed by Keyes.—The secretary will appreciate any information regarding the following: Earl McC. Smith, Plumer Henry Smith, Frederick Salathe, Martin W. Lantz, Arthur H. Lange, Carl G. Hoppitz, Carl G. Jerden, Charles Russell Keith, Fred R. C. Farnun, Chauncey Howard Crawford.

Changes of Addresses

Salvador Altanniano, 4A Napolez 70, Mexico City.—Richard S. Ayres, 83 Newbury Street, Boston, Mass.—Clarence J. Brown, care of D. H. Burnham & Co., 80 East Jackson Boulevard, Chicago, Ill.—Ballard Y. Burgher, Morse & Cockey, Baltimore, Md.—Charles Freed, care of Warren Bros., 40 Market Street, Cambridge, Mass.—C. Thurston Johnson, 1012 Dearborn Avenue, Chicago.—William J. McAuliffe, New York Central & Hartford Railroad Co., Albany, N. Y.—Valerio Masjoan, care of Juan S. Atwell, 2016 Hillxer Place, Washington, D. C.—C. W. Radford, care of Radford-Wright Company, Winnipeg, Man., Canada.—Roger C. Rice, 505 U. S. Custom House, San Francisco, Cal.—Maurice R. Scharff, 1224 Maplewood St., Birmingham, Ala.—

Miss Rebecca H. Thompson, Kamehameha School, Honolulu, T. H.—G. E. Washburn, Pension Bismarck Platz, Paulsborner Str. 47, Berlin, Germany.

1910.

JOHN M. FITZWATER, *Sec.*, Penn Yan, N. Y.
G. BERGEN REYNOLDS, *Asst. Sec.*, 142 Highland Avenue, Somerville, Mass.

It is not too late for those who have not yet paid their class dues to do so now. Out of over seven hundred men, who at one time or another were connected with the class, and of the two hundred-fifty graduates, less than one hundred have shown interest enough to pay their dollar. The following is a good example of how some of the notices were mislaid. Not long ago the assistant secretary met a classmate who asked him Fitzwater's address. He said that on cleaning out his desk he came across the notice for class dues and did not know where to send his money. For the benefit of others who are in the same position, the address of the secretary-treasurer is Penn Yan, New York.—The way the members of the class have responded to the assessment of class dues does not look very encouraging for a project to raise a fund for the New Technology. No doubt the members of the class have been following very closely the movement which has created such widespread interest. Our class should make a good showing, and in order to do so every one must respond generously and promptly when the call comes. Just how the class will raise money, and what amount, has not yet been decided.—In the near future the class will hold a dinner at some convenient place. In order to make the dinners more frequent and informal, it has been suggested that the class hold an inexpensive dinner, every other month at such a time that it would be over about seven-thirty o'clock. This arrangement would permit the men to spend the evening as they chose.—The *Transcript* gives an account of the wedding of Henry F. Miller, 2d, to Miss Edith Wood Proctor of Wakefield, Mass. The bride is a graduate of Wellesley College, 1910. Mr. and Mrs. Miller will be at home at 25 Richardson Avenue, Wakefield, Mass.—Frank Bell finished his work on the Estacada dam last fall, having been there since he went West, about eighteen months ago. After taking a short vacation up in the mountains, hunting and fishing, Bell expects to go to Honolulu, Hawaii, where he will be engaged in power plant work.—Fitzwater and Terry are going into the paving business for themselves. For the past four months they have been securing their backing, which will allow them to bid on some of the big work to be done in the state. We extend to them our sincerest wishes that their new enterprise may be a success and be an example of modern scientific engineering.—John Tuttle has gone to Akron to

take a position in the experimental department of the Goodyear Rubber Company, under Edwin Hall, '08, who has charge of the department. Tuttle promised to write, and although no letter has yet been received we trust that we may hear from him and also learn what Preston and Batchelor are doing.—H. A. Smith left the Vermont Granite Company last July and has accepted a position with the Amoskeag Manufacturing Company, Manchester, N. H. Smith has charge of installing Taylor's system of scientific management in the machine shops.—Ragsdale, who is second lieutenant in the coast artillery, is now stationed at one of the forts in Boston.—D. A. French has given up engineering and has taken the management of the *Hyde Park Gazette*.—H. E. Fowler is with Purdy and Henderson, Everett Building, New York City.—H. E. Akerly is with C. W. Gendele Company of Chicago, and is now superintendent of the work for this company. His address is 843 West Macan Street, Decatur, Ill.—Joseph Northrop, Jr., is with Grout, Goodhue, Furgeson, architects. He is superintendent of the new university at Houston, Texas.

Changes of Addresses

Leon W. Adler, P. O. Box 188, University of Pennsylvania; Woodland Avenue and 37th Streets, Philadelphia, Pa.—R. L. Bartlett, Lehigh University, South Bethlehem, Pa.—F. A. Dewey, 2880 Broadway, New York City.—C. C. Hield, 1722 Freemont Avenue South, Minneapolis, Minn.—T. S. Sneddon, Box 802, St. Johnsville, N. Y.—R. Rietschlin, care of J. R. Block Ranch, Cotulla, Texas.—R. F. Goodwin, Broyden Copper Company, Rancagua, Chili, South America.—W. K. Brownell, Room 2238, Grand Central Terminal, New York City.—J. M. Bierer, Front Royal, Va.—W. R. Dray, Hotel Metropole, Chicago, Ill.—K. W. Gasche, Dresden, Ohio.—R. F. Hill, care of C. G. Bennett, 472 Second Avenue, Detroit, Mich.—G. G. Holbrook, M. I. T., Boston, Mass.—G. S. Humphrey, Knight Power Company, Provo, Utah.—H. F. Miller, 2d, 25 Richardson Avenue, Wakefield, Mass.—C. P. Monto, National Carbon Company, Cleveland, Ohio.—I. H. O'Brien, care of American Blower Company, Detroit, Mich.—F. H. Remick, Box 418, Kittery, Me.—C. A. Schellens, P. O. Box 4, Groton, Conn.—Walter W. Scofield, Jr., 57 General Green Avenue, Trenton, N. J.—M. C. Sherman, 161 Wardwell Avenue, West New Brighton, N. Y.—R. R. Taylor, 114 Pembroke Street, Boston, Mass.—W. H. Wengert, M. I. T., Boston, Mass.

1911.

ORVILLE B. DENISON, *Sec.*, 49 Institute Road, Worcester, Mass.

As announced in the November number of the REVIEW, this month's 1911 "story" is in the form of a class directory. This directory includes only the names and addresses of the members

of the class who have given their addresses to the secretary, either personally or by mail, since June. Last September 640 letters, with return postals enclosed, were sent out by the secretary, one to every person ever connected with 1911. To date but 278 replies have been received, in addition to twenty-seven letters which have failed to reach the addresses and have been returned. If *You* have not written to the secretary since June, *Do It Now!*

The directory of members follows:—

1911 *Addresses*

J. A. Aaron, 609 Braddock Avenue, Braddock, Pa.—F. H. Adams, 1709 Caton Avenue, Brooklyn, N. Y.—D. P. Allen, care of United Gas Improvement Company, Philadelphia, Pa.—W. D. Allen, 27 St. James Avenue, Boston.—Sydney Alling, Engineering Department, Rochester Railway & Lighting Co., Rochester, N. Y.—H. B. C. Allison, care of Chemical Department, M. I. T.—Reuben Althouse, 1815 16th Street, Boulder, Col.—C. S. Anderson, care of Telluride Power Company, Ilium, Col.—R. E. Anderson, Hotel Anderson, 307 Broadway, Cincinnati, Ohio.—G. W. Arnold, 118 Shaw Street, Hamilton, Ont.—Walter Arthur, Research Laboratory, General Electric Company, Schenectady, N. Y.—C. S. Ashley, Jr., 62 Pleasant Street, New Bedford, Mass.—H. E. Babbitt, 39th Street, Pumping Station, Chicago, Ill.—C. M. Barker, 29 North 17th Street, East Orange, N. J.—C. S. Barnes, 11 Highland Park, Batavia, N. Y.—G. W. Barnwell, Baconton, Ga.—Kester Barr, 84 Hodge Avenue, Buffalo, N. Y.—C. L. Bartlett, care of Atlantic Gulf & Pacific Co., Mobile, Ala.—R. M. Barton, 519 Pontiac Avenue, Auburn, R. I.—S. C. Bates, 405 E. John St., Champaign, Ill.—E. J. Batty, Lowell Textile School, Lowell, Mass.—J. A. Bell, care of Chemical Department, Roessler & Hasslacher Co., Perth Amboy, N. J.—J. A. Bigelow, 64 Highland Street, Marlboro, Mass.—M. B. Black, Minetto, N. Y.—E. H. Blade, care of Millville Mfg. Co., Millville, N. J.—Suren Bogdasarian, 37 Hopedale Street, Allston, Mass.—T. Q. Boozer, State Electrician of South Carolina, P. O. Box 155, Columbia, S. C.—J. R. Bowman, Y. M. C. A. Building, Wilmington, Del.—G. G. Brooks, Atlanta, Ill.—Miss Edith L. Brown, Turlock High School, Turlock, Cal.—G. A. Brown, 26 Cumberland Street, Boston.—H. C. Brown, 34 Mallon Road, Dorchester, Mass.—P. K. Brown, 290 Myrtle Street, Manchester, N. H.—M. B. Brownlee, Jr., care of Franklin Electric Mfg. Co., Hartford, Conn.—R. B. Brownlee, 38 St. Botolph Street, Boston.—W. S. Burleigh, 12 Buck Street, Natick, Mass.—P. L. Caldwell, 142 Main Street, Bradford, Mass.—A. W. Carney, 2239 81st Street, Bensonhurst, Brooklyn, N. Y.—J. R. Carpenter, P. O. Box 336, Kennett, Cal.—O. V. Chamberlin, care of Dolphin Jute Mills, Paterson, N. J.—O. von H. Chase, 118 Newtonville Avenue, Newton, Mass.—O. S. Clark, 292 Woodside Avenue, Newark, N. J.—W. H. Coburn, 225 New-

bury Street, Boston.—Mitchell Coffin, Hotel Carlton, Boston.—M. E. Comstock, 75 Wyman Street, West Medford, Mass.—W. F. Connolly, Lowell Industrial School, Lowell, Mass.—F. G. Cooke, care of Hull Division, Navy Yard, Philadelphia, Pa.—L. C. Cooley, 90 Westland Avenue, Boston.—S. B. Copeland, 234 Newbury Street, Boston.—S. H. Cornell, care of Scientific Department, N. Y. Shipbuilding Company, Camden, N. J.—F. L. Courts, 319 West 134th Street, New York City.—A. E. Coupal, care of Buffalo Shoe Company, 156 Pearl Street, Boston.—G. A. Cowee, Box 781, Trenton, Ont., Canada.—Rufus Crane, North Hanover, Mass.—S. H. Crowell, 102 Cooper Street, Woodbury, N. J.—D. J. Crowley, Jr., 12 Hampshire Street, Lawrence, Mass.—G. B. Cumings, Winchester, Mass.—F. H. Curtis, 960 10th Street, Douglas, Ariz.—G. B. Curwen, 7 Fairfield Street, Salem, Mass.—A. T. Cushing, Suite 3, 82 Huntington Avenue, Boston.—P. A. Cushman, Trinity College, Hartford, Conn.—F. H. Daniels, Jr., Engineering Department, B. F. Sturtevant Company, Hyde Park, Mass.—B. Darrow, 95 Charlotte Street, Akron, Ohio.—H. M. Davis, 28 Auckland Street, Dorchester, Mass.—O. B. Denison, 49 Institute Road, Worcester, Mass.—M. S. Dennett, care of Packard Motor Car Company, Detroit, Mich.—W. B. Denton, care of Vulcan Iron Works, Denver, Col.—H. F. Dolliver, care of Aberthaw Construction Company, Corner Carroll and Hydraulic Streets, Buffalo, N. Y.—C. W. Dow, 923 Hammond Building, Detroit, Mich.—Whitford Drake, 212 Bacon Street, Waltham, Mass.—Norman Duffett, care of Rubber Department, S. S. White Dental Mfg. Co., Prince Bay, Staten Island, N. Y.—J. F. Duffy, 22 Portland Street, Worcester, Mass.—Miss Ruth Dunbar, 43 Center Street, Brookline, Mass.—Chester Dunlap, 40 Summer Street, Everett, Mass.—S. B. Dyer, care of Allston Car Shops, Allston, Mass.—Charles Edwards, Jr., care of Hamburg-American Line, Hamburg, Germany.—G. W. Elder, 52 Maple Street, Malden, Mass.—C. P. Eldred, 20 St. James Avenue, Boston.—C. S. Ell, 7 Follen Street, Boston.—Rudolph Emmel, 214 Gaston Ave., Fairmont, W. Va.—F. J. Evans, 7 Grafton Street, Dorchester, Mass.—E. N. Fales, care of Mississippi River Power Company, Keokuk, Ia.—K. W. Faunce, West Roxbury, Mass.—J. C. Firmin, 251 Patent Office, Washington, D. C.—L. G. Fitzherbert, 16 Oxford Street, Somerville, Mass.—A. V. de Forest, 1571 Beacon Street, Brookline, Mass.—G. B. Forristall, 666 Washington Street, Brookline, Mass.—W. D. Foster, 285 Central Street, Springfield, Mass.—D. N. Frazier, 90 Exchange Street, Lynn, Mass.—J. N. French, 3 Hamilton Place, Boston.—H. C. Frisbee, care of Rio Janiero Tramway, Light & Power Co., Rio Janiero, Brazil.—Herbert Fryer, 28 Washington Street, Stoneham Mass.—George Fuller, 423 Cutler Building, Rochester, N. Y.—J. C. Fuller, care of Union Bag & Paper Co., Hudson Falls, N. Y.—Miss Margaret A. Fulton, 5138 Newhall Street, Philadelphia, Pa.—D. P. Gaillard,

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